FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

SEPTEMBER, 1954

"Wild" Hose Line Gives Hudson Falls, N. Y., Fire Fighters an Exciting Interlude (Story on Page 752)

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breathing problems

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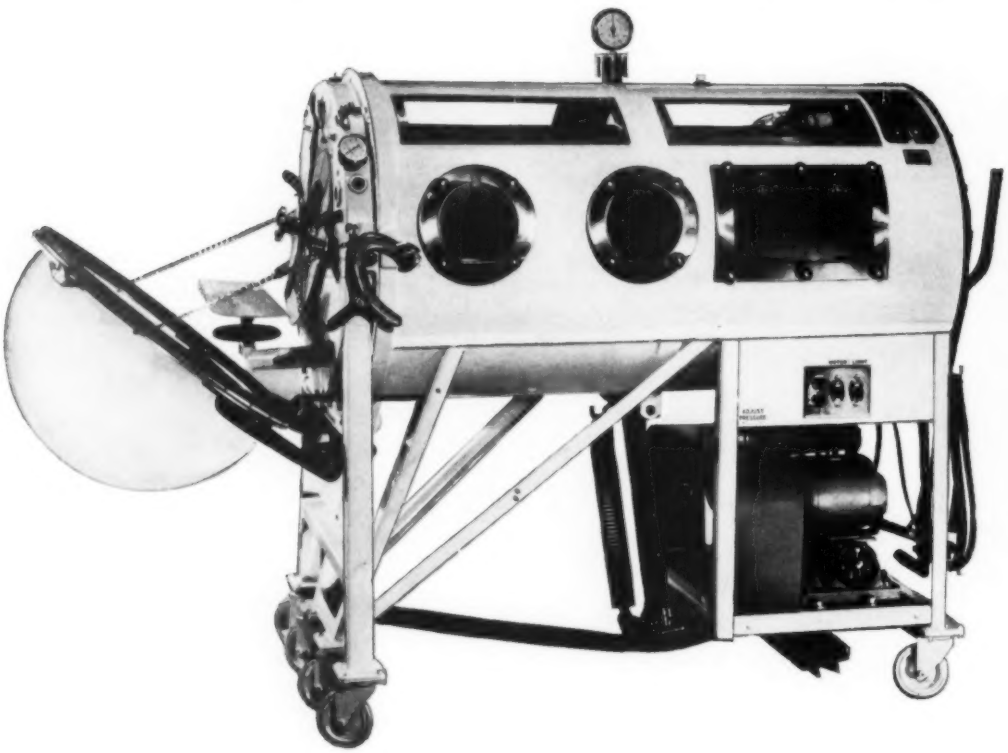

made by the makers of

***EMERSON* RESUSCITATORS**

J. H. EMERSON COMPANY

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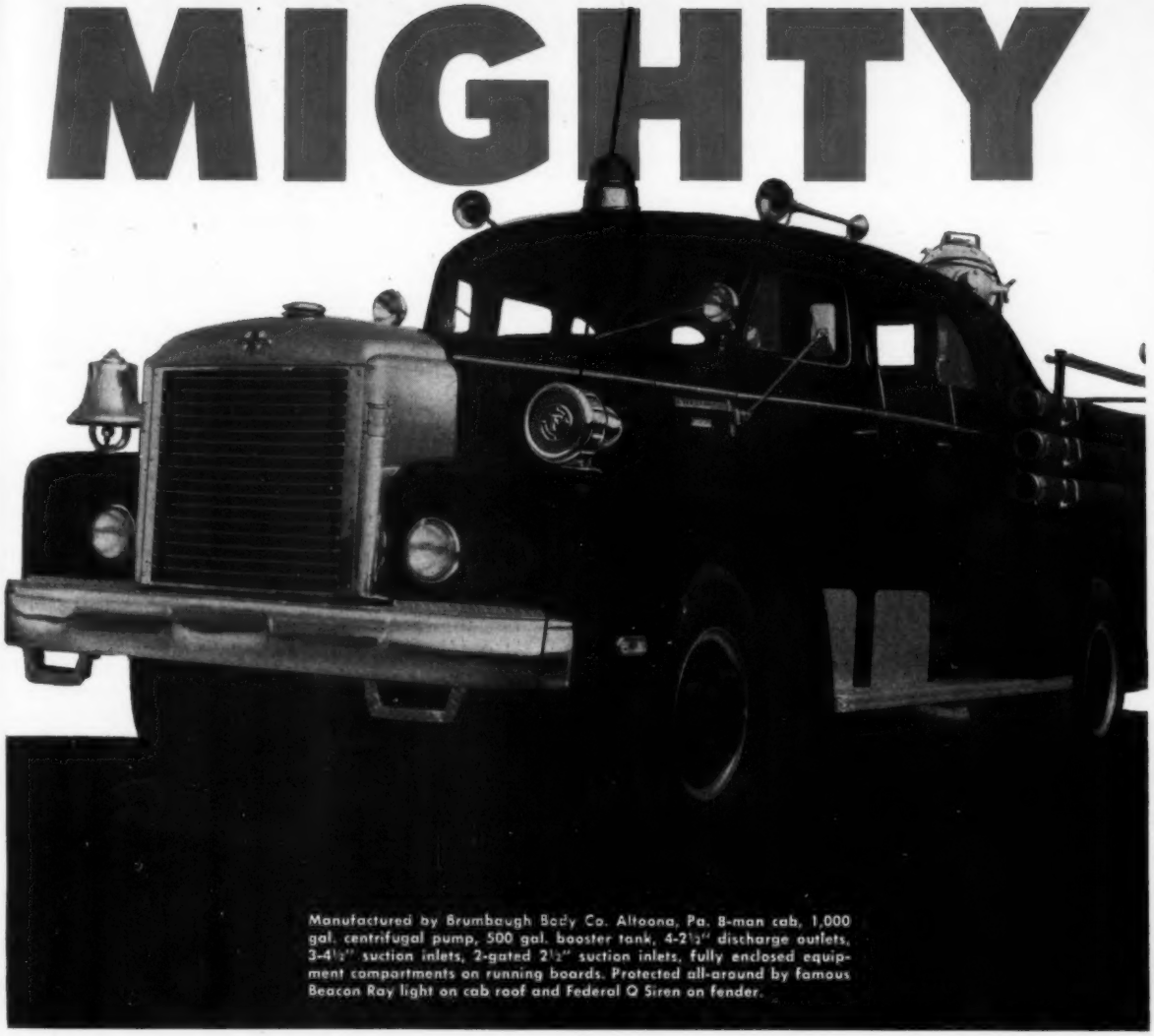
MIGHTY



Manufactured by Brumbaugh Body Co. Altoona, Pa. 8-man cab, 1,000 gal. centrifugal pump, 500 gal. booster tank, 4-2½" discharge outlets, 3-4½" suction inlets, 2-gated 2½" suction inlets, fully enclosed equipment compartments on running boards. Protected all-around by famous Beacon Ray light on cab roof and Federal Q Siren on fender.

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The beacon Ray and Q are the mighty mites that flash and roar a warning — clearing the way for the passage, through traffic of the mighty bulk of this magnificent fire fighter. Federal manufactures a complete line of warning signals. *Specify* Federal for your equipment today!

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FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

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THE BIG ISSUE

THERE are many "big issues" before the Nation's Fire Service today: the issue of more and better-trained manpower; of more modern fire fighting equipment; of rehabilitating ancient fire stations,—and building new ones; of revising and improving old fire extinguishing methods, and of preventing fires. But the "Big Issue" to which we refer is the October Fire Chiefs' Conference and Buyers' Guide number of this Journal.

● For over 77 years the Nation's firefighters have looked to the Fire Chiefs' Conference and Buyers' Guide issue of FIRE ENGINEERING to post them not only on the "big issues" facing them in the fire service, but upon what's to happen at the IAFC Conference itself—the most important meeting of the year of not only fire officials of this country but from all over the civilized world.

● This year's October Fire Chiefs' Conference and Buyers' Guide number will be no exception. It's going to be tough to beat last year's record-breaking book, but right now it looks as if it will be done!

● Watch for this epochal issue—and be sure you get it! As one life-time reader puts it: *"It will be worth the entire amount of your two year's subscription!"*

The Publishers

FIRE ENGINEERING

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DOUBLE-SURFACE JACKETS

DOUBLE-SURFACE MEANS DOUBLE-SERVICE

This is a magnified cross-section cut length wise through a FABRILON hose jacket. The cabled warp strands are shown closely interwoven with FABRILON filler cords in FABRIC's exclusive *twill woven* construction.

For every stitch that is inside there are *two* on the outside, which means that *twice* as much material is on the *outside* of the jacket, producing a smooth, *double-wearing* surface attained only in our *twill woven* FABRIC jackets.

FABRIC FIRE HOSE COMPANY

THE ONLY EXCLUSIVE MANUFACTURER OF FIRE HOSE IN AMERICA

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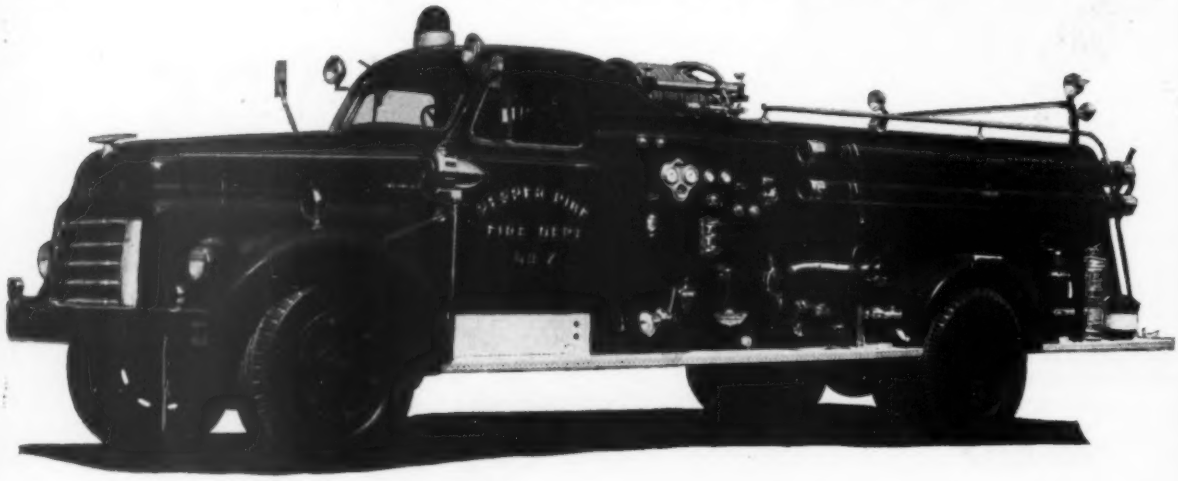
IN CANADA BICKLE-SEAGRAVE, LTD. WOODSTOCK, ONTARIO

American FIRE ENGINES OFFER YOU MORE BIG FEATURES THAN ANY OTHER STANDARD 750 GALLON PUMPER



JUST LOOK at this superbly engineered, top quality pumper delivered to the Pepper Pike Fire Department. *No other apparatus builder* offers a *standard* 750 G.P.M. triple combination pumping unit with so much standard equipment . . . so much advanced engineering . . . so many useful refinements.

COMPARE these proud features with any other make . . . and you'll want American Fire Apparatus too!

All These Features Are Standard Equipment!

PUMP — Barton-Duplex Multi-stage Centrifugal . . . the *only* two-stage pump with independent pumping units. (Also available in three and four stages.) Vacuum gear shift, vacuum clutch operation. All piping oversize . . . cuts friction loss to a minimum.

CONTROLS — All controls and gauges are complete in one panel on left side. Three 2½" discharge outlets with easy-operating ball-type valves in side of body . . . locking type handles.

HOSE — Two fire-killing Barton Super-Fog Guns, carried in chrome-plated brackets. Two booster reels with chrome-plated rollers and spools . . . 300 feet of 1" booster hose standard equipment . . . special American electric rewinds. Quick-release suction hose carrier clamps, chrome-plated . . . new improved suction strainer.

BODY — Streamlined body joined with cab . . . full length, streamlined brass body rails and rear crossbar, all chrome-plated . . . heavy treadplate running board and rear step . . . streamlined rear fenders . . . slatted, natural-finished native oak hose-bed floor.

TANK — Capacity 300 gallons, with 3/16" bottom, 10 gauge sides, with lapped, welded corners . . . frost-proof tank outlet valve . . . tank float level gauge shows amount of water at all times. Patented rear filler doubles as relief valve — always protects tank when being filled with the pump.

EQUIPMENT — Full complement of fire department ground ladders on right side . . . plus all extinguishers, tools, brass fittings, etc . . . complying with National Board of Fire Underwriters' requirements.

. . . PLUS — Single, undivided responsibility for pump and engine that assures complete satisfaction.

COMPARE these big features with any other make . . . then contact your American Fire Apparatus representative!

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P. O. BOX 1024, MAIN ST. ROAD, BATTLE CREEK, MICH.
"Always Pioneering with Better Engineering."

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER

Begin at the end when you buy fire hose

THE weak spot in most fire hose is the coupling area. That's where the hose is twisted when it's connected to the hydrant, where it's bent when the hose is coiled. The coupling and coiling cause tube cracks that eventually give way under water pressure.

In B. F. Goodrich hose this cause of hose failure has been eliminated by adding a layer of hard woven cords to each end of the hose. The extra cords give added protection against twisting and coiling, prevent damage to the tube. As a result not one single length of B. F. Goodrich hose with Plylock end protection has ever failed in the coupling area.

This end protection is one big reason why the Port Huron, Michigan Fire Department (shown above) changed to B. F. Goodrich Fire King. But after using it, Chief George W. Hisscock and his men are just as enthusiastic about Fire King's light weight and flexibility. They find that Fire King gets into action faster and is much easier to handle than the hose they had been using.

B. F. Goodrich Fire King is 18% lighter, much more flexible than other hose because of a chemically-produced fiber. B. F. Goodrich uses this fiber as "filler" cords—the cords that go around the hose and give it strength to take top pressures. Actual service tests prove that Fire King, tested to 600 pounds pressure, is 50% stronger than standard fire hose, which is tested to only 400 pounds pressure.

Before you buy another length of fire hose, let a BFG Fire Hose Distributor show you a sample of Fire King and give you prices. While you may find that the initial cost of Fire King is slightly higher, it's really your most economical buy because it lasts longer. *The B. F. Goodrich Company, Dept. M-306, Akron 18, Ohio.*

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Announcing a

RELIABLE

RUGGED

POWERFUL

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GUARANTEED RANGE

QUALITY CONTROLLED MANUFACTURE

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NO WIRING INSTALLATION . . .

NO CONTINUOUS HIGH RENTAL . . .

ONE PURCHASE—YOU BUY IT—YOU OWN IT . . .

ELECTRONICS today control robot planes . . . computing machines . . . guided missiles.

The SAFER system now brings these latest electronic developments to the fire fighting world.

SIMPLE TIME TESTED OPERATION

1 . . . Conventional manual switch activates powerful transmitter which sends coded alarm to fire house. Each box has its own code for instant location identification.

2 . . . Receiver in fire house and receiver in fire chief's car can receive and identify location of five hundred different boxes.

3 . . . Location of activized box is instantly sounded out on bell at fire house and in chief's car.

4 . . . Location of activized box can also be sounded on sirens, air whistles, etc., to alert volunteers and entire community to location of fire.

DEALERS with substantial sales and service facilities will be considered for dealer franchise. Write—

SAFER ELECTRONIC

CALL BOX DIVISION

Revolutionary New RADIO OPERATED SIGNAL BOX SYSTEM

SAFER boxes for factories, warehouses and storage yards.

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2-4-1

SAFER boxes for unprotected areas, new developments or to supplement existing wired systems.

CHIEF'S CAR

FIRE HEADQUARTERS

3-3-1

SAFER boxes for hotels, schools and hospitals.

THAT EVERY COMMUNITY —EVERY FACTORY—EVERY HOSPITAL—EVERYWHERE— CAN AFFORD TO OWN!

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Write NOW for additional data . . .

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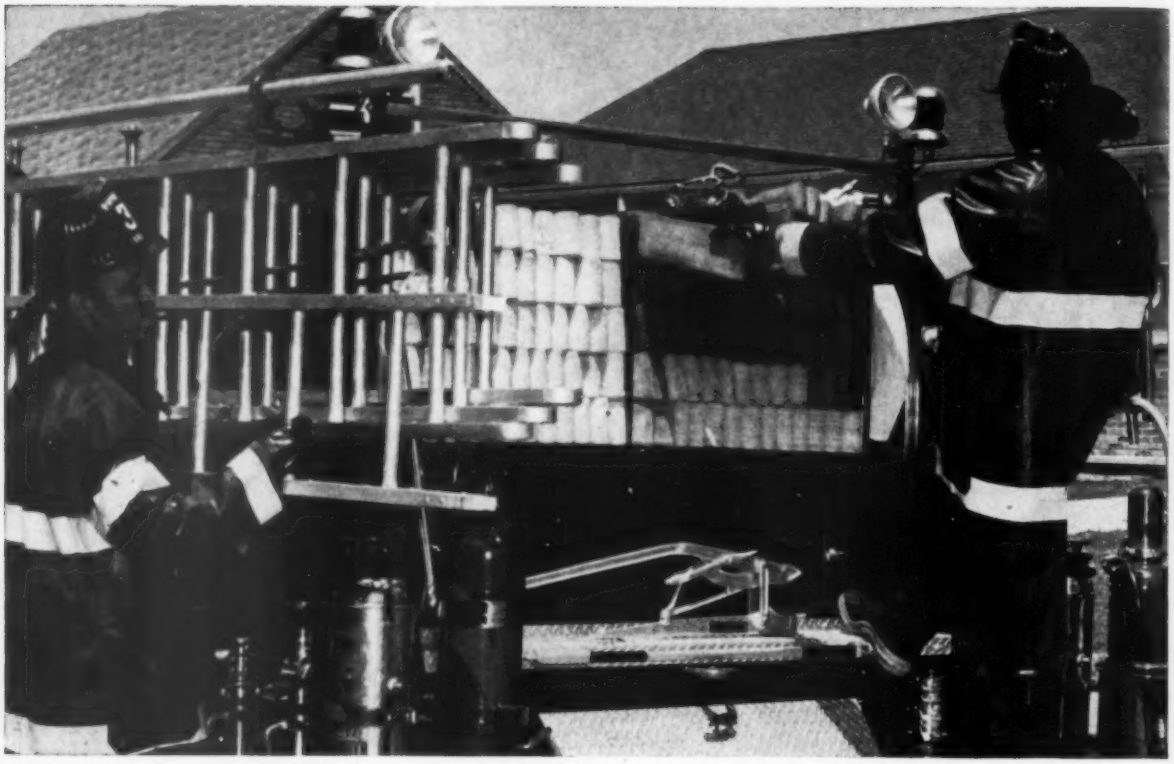
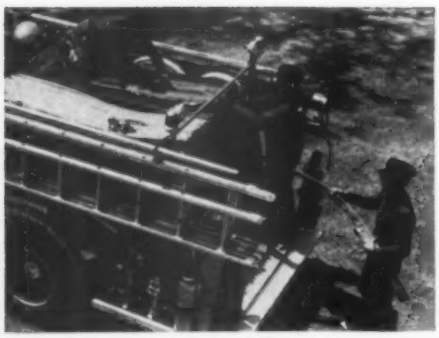


Michigan Fire Dept. reports:

Lightweight hose made with Dacron* is flexible . . . easy to handle



Flexible hose made with "Dacron" permits fast coiling and racking.

"We've reordered hose made with 'Dacron' several times," says Chief Kenneth L. Roberts of the Inkster Fire Department, Inkster, Michigan. "Hose reinforced with 'Dacron' is easy to handle, lightweight and flexible too— and more of it can be carried on the apparatus."

Photo above shows how 800 ft. of hose made with "Dacron", right rear, racks compactly in same amount of space as 600 ft. of conventional hose at left.

Many fire departments are reporting increased all-round performance from hose made with "Dacron" polyester fiber. Used as the load-carrying "filling" cord that reinforces the hose, this man-made fiber permits a hose that's light and flexible—yet *stronger* than ordinary hose of the same diameter.

The superiority of hose made with "Dacron" has been conclusively proved by two years of field testing under all conditions. Du Pont makes the "Dacron" fiber, but not the hose. Fire hose made with "Dacron" is produced by many of the leading fire-hose manufacturers. Ask your supplier about it the next time you need hose. E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Department, Wilmington 98, Delaware.

*REG. U.S. PAT. OFF.

ADVANTAGES OF FIRE HOSE MADE WITH "DACRON":

- Lighter
- Stronger
- More flexible
- Cuts loading time
- Saves space

DACRON

POLYESTER FIBER

DU PONT

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FIRE PUMPS

the savage fire fighters

The powerful stream of an *INDIAN FIRE PUMP* cleaves a blaze like the swift blow of a tomahawk. As a warrior springs into action, so does an *INDIAN* destroy flame quickly and completely. Thousands of professional firefighters consider *INDIAN FIRE PUMPS* their first line of attack.

Order a trial lot today and see for yourself the advantages of *INDIAN FIRE PUMPS* . . . . the *savage* firefighters. You, too, will say they are indispensable.

(You should have our new catalog)

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The famous Midwestern Manufacturing Company trademark is your guide to the finest protective clothing that money can buy—garments that are specifically designed to help safeguard your men's life on every run—enable them to use their equipment to the fullest advantage. Superior quality, design, fabric texture and many exclusive features have made Midwestern Protective Clothing highly favored wherever men fight fires.

- **Exclusive Safety Features**
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- **Made of Natural Rubber**

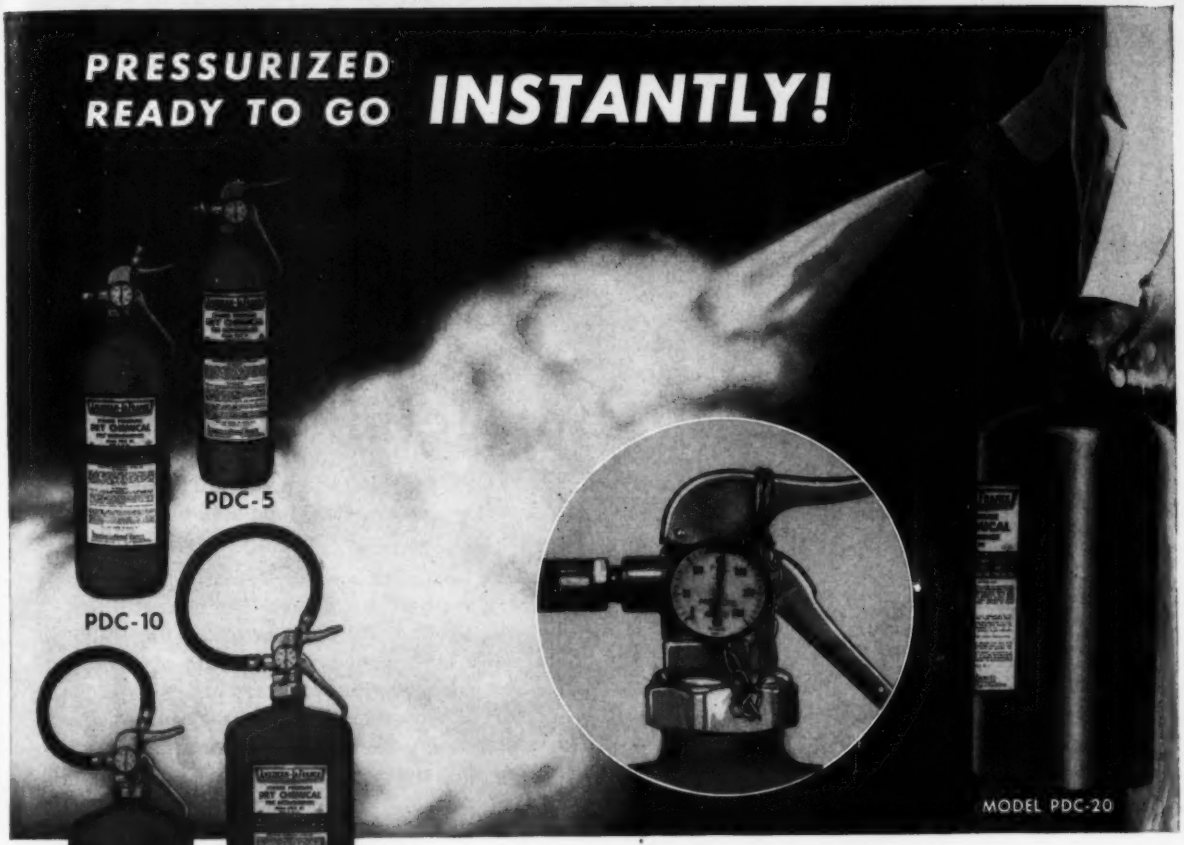
We manufacture both rubber and fabric fire coats. In our vast selection of materials you will find the type of fabric exactly suited to your climate and needs. You can depend on the softness and flexibility of the high grade materials used to meet your most exacting requirements for lasting comfort and service under the most rugged conditions.

For complete information on our full line of firemen's protective clothing, see your Midwestern dealer. A letter to the factory will also bring you literature and material samples for your inspection.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN MFG. CO., Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Coats**



AMERICAN-LAFRANCE

DRY CHEMICAL EXTINGUISHERS

When fire hits, these new American-LaFrance Dry Chemical models are ready to stop it. Simply pull pin and squeeze lever. No gadgets to operate, no last minute pressurizing from a gas cartridge or cylinder, no inverting, no bumping, no shut-off nozzle on the hose needed. They're ready to go!

Their fire-smothering efficiency is aided by a scientifically designed Discharge Nozzle which fans the Dry Chemical downward in wide pattern and with great density. Their 150 (plus 25 minus 0) psi. air (or nitrogen) pressure maintains uniform duration of the Dry Chemical discharge pattern.

A glance at valve gauge indicates whether unit is in operating order. When partially operated, the extinguisher can be left standing without loss of air pressure, for use on a possible reflash.

The American-LaFrance Dry Chemical Valve is completely new also. It is ruggedly built. No special tools needed. Contains few parts. Equipped with Safety Relief Valve. Complete valve and siphon tube assembly removes as a single unit for recharging. They're watertight, and corrosion resistant. Tested for vibration and for operation at temperatures from minus 40° F. to plus 150° F. A Moisture Trap provides for pressurizing with air. Write for free illustrated literature.

Approved by Underwriters' and Factory Mutuals Laboratories for Class B and C fires

2nd Century of Leadership in FIRE PROTECTION

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Special Provar process keeps the hose like new despite long storage periods, and the most advanced principles of design give Republic Fire Hose maximum fire-fighting strength and service ability.

Consult your Distributor today or write direct for information.

"Quality Hose Builders for Over 50 Years"

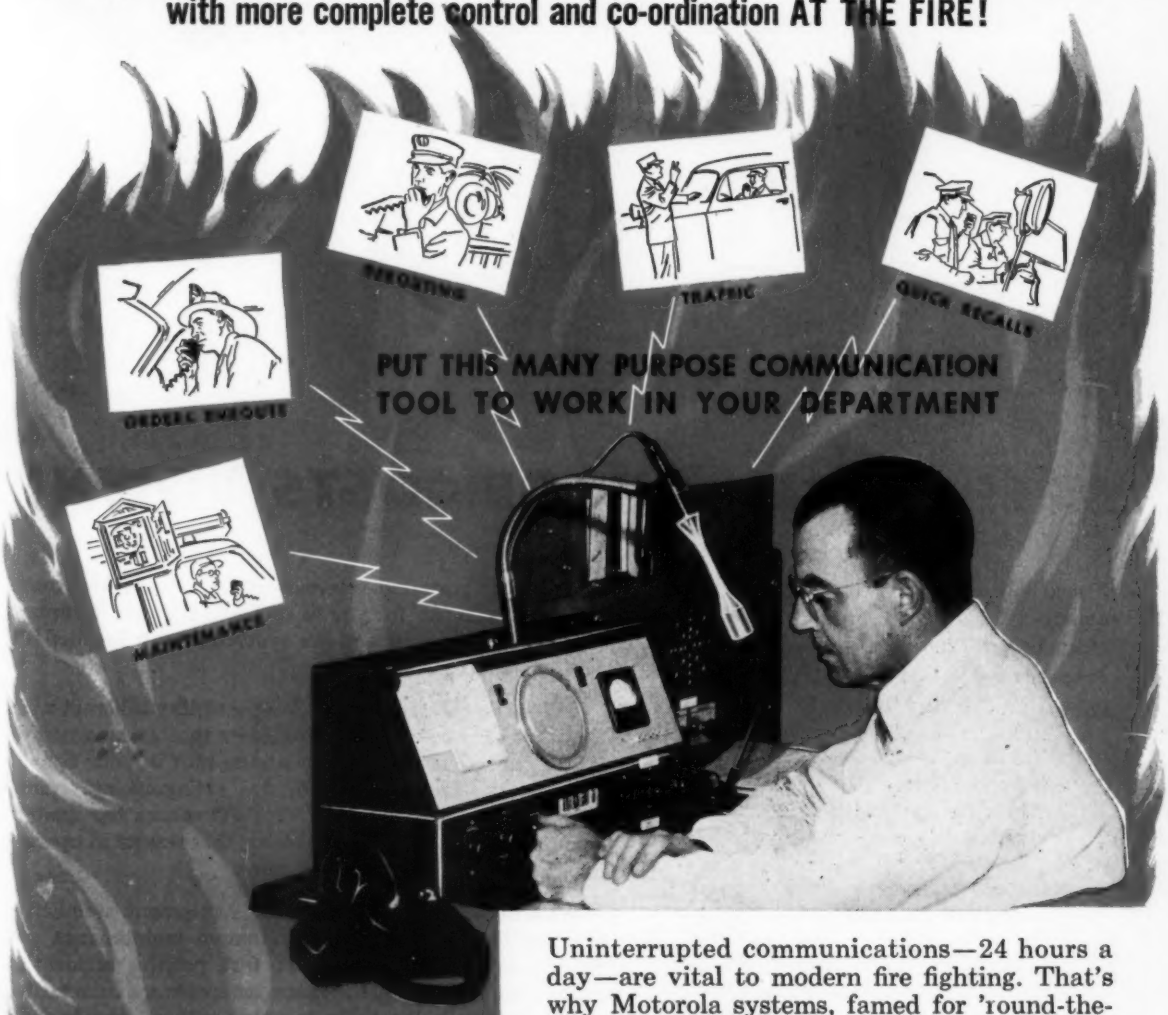
REPUBLIC RUBBER DIVISION

LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN 1, OHIO

INDUSTRIAL RUBBER PRODUCTS

MOTOROLA 2-WAY RADIO
GAINS MAXIMUM USE OF MEN AND EQUIPMENT

with more complete control and co-ordination AT THE FIRE!



—top quality components plus years ahead design give you communications you can depend upon—*always!*

Uninterrupted communications—24 hours a day—are vital to modern fire fighting. That's why Motorola systems, famed for 'round-the-clock dependability, are first choice of 75% of the radio-equipped fire departments.

Better parts, years-ahead design, and precision workmanship guarantee the kind of performance firemen have learned to expect from Motorola equipment. Eight exclusive Motorola improvements give you time-tested durability . . . lowest overall maintenance. The Motorola "Permakay" wave filter eliminates 15 nuisance tuning adjustments *forever!* Let an experienced Motorola engineer in your vicinity give you the complete Motorola 2-way Radio story *soon!*

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service

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KEEPS FIRE DAMAGE COSTS DOWN!

Among the many types of up-to-date, fully approved fire protection equipment manufactured by C-O-TWO, the following comprise the principal items on the market today:

- carbon dioxide type hand and wheeled portable fire extinguishers
- dry chemical type hand and wheeled portable fire extinguishers
- carbon dioxide type hose rack and hose reel fire extinguishing units
- built-in high pressure carbon dioxide type fire extinguishing systems
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- built-in smoke fire detecting systems
- built-in heat fire detecting systems
- high pressure carbon dioxide cylinder recharging equipment

Today's high costs and delayed replacements make it more and more a "must" for you to obtain the lowest insurance rate and the maximum in fire protection at a justified all over expenditure.

There is a personal sense of responsibility inherent with C-O-TWO Fire Protection Engineers that assures you of fully adequate firesafety... a definite plus in your behalf. Whether it's fire detecting or fire extinguishing... portables or built-in systems... C-O-TWO means top quality backed by experienced engineering that results in operating superiority for you at all times.

With C-O-TWO Fire Protection Equipment, simplicity, practicability, longevity and minimum maintenance are built-in features that guarantee fast, positive action the instant fire strikes. Furthermore, extensive manufacturing and field installation skills, together with approvals such as the Underwriters' Laboratories, Inc., Factory Mutual Laboratories, Armed Forces and Government Bureaus assure you of the finest in modern fire protection equipment.

WHEN BUSINESS STOPS . . . INCOME STOPS!

Don't take chances with your investment. Secure the benefits of highly efficient fire protection engineering today... our extensive experience over the years is at your disposal without obligation. Get the facts now!

C-O-TWO FIRE EQUIPMENT COMPANY
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Sales and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY

Drownings

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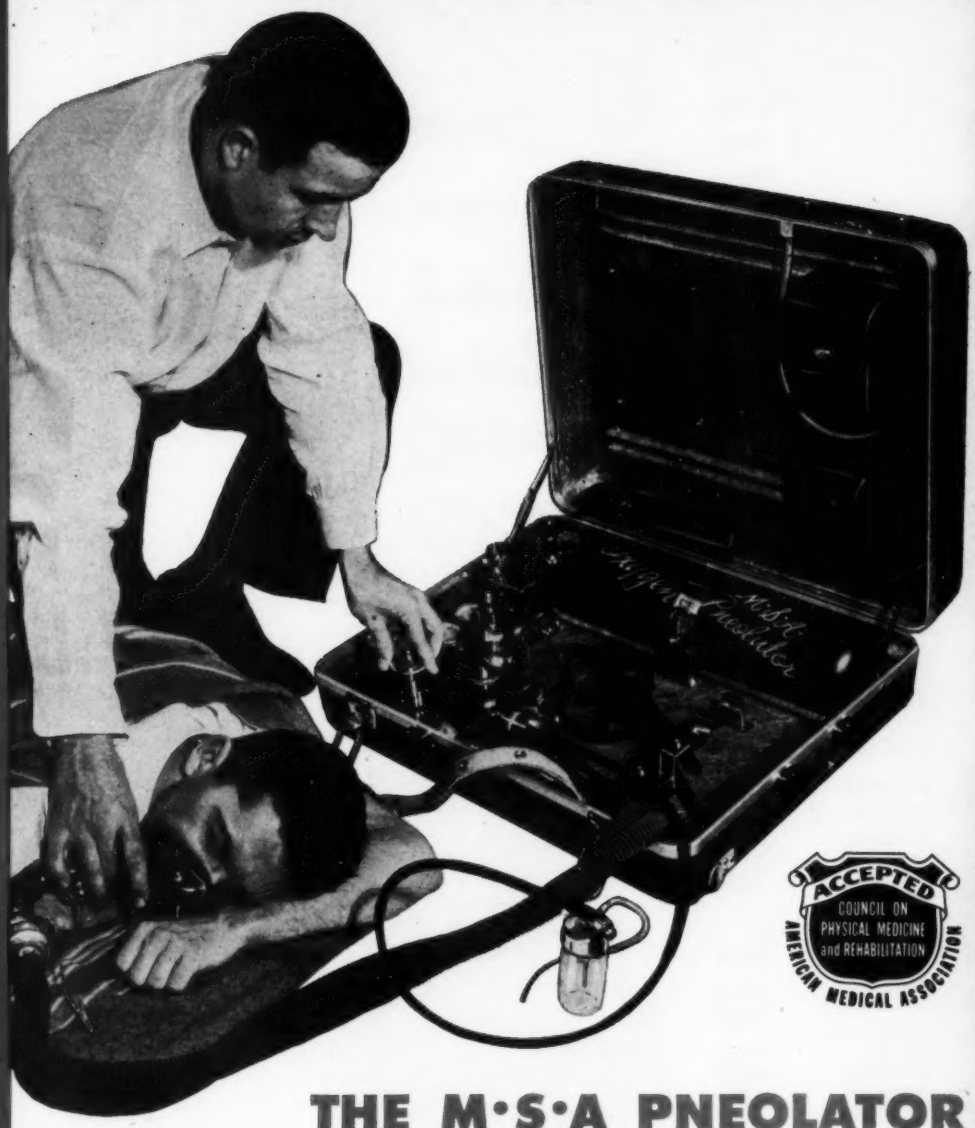

ACCEPTED COUNCIL ON PHYSICAL MEDICINE and REHABILITATION AMERICAN MEDICAL ASSOCIATION

THE M·S·A PNEOLATOR

betters chances of recovery in all cases of arrested breathing

Because a crisis like one of those pictured here can send an emergency call into your department house at any time, an M.S.A. Pneolator is vital equipment. This modern device applies automatic artificial respiration in a way that *most nearly duplicates natural breathing*. Providing oxygen to the lungs at a pre-selected pressure and amount, the Pneolator "breathes" for the victim . . . aids the victim to full recovery. There is no suction cycle. The natural recoil of chest and diaphragm produces exhalation. Easy pressure setting for infants, children and adults. Portable; self-contained. Write for details.

NOTE: The first few minutes after breathing has ceased are the most critical. Manual artificial respiration should be started and continued until the Pneolator is in use.

MSA
SAFETY EQUIPMENT HEADQUARTERS

Call the M.S.A. man on your every safety problem . . . his job is to help you

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At Your Service: 76 Branch Offices in the United States
MINE SAFETY APPLIANCES CO. OF CANADA, LIMITED
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Cable Address "MINSAF" Pittsburgh

SERVING SAFETY 40 YEARS 1914 ★ 1954

SEAGRAVE PUMP MOUNTED DEEP IN FRAME...*lower center of gravity for greater* SAFETY

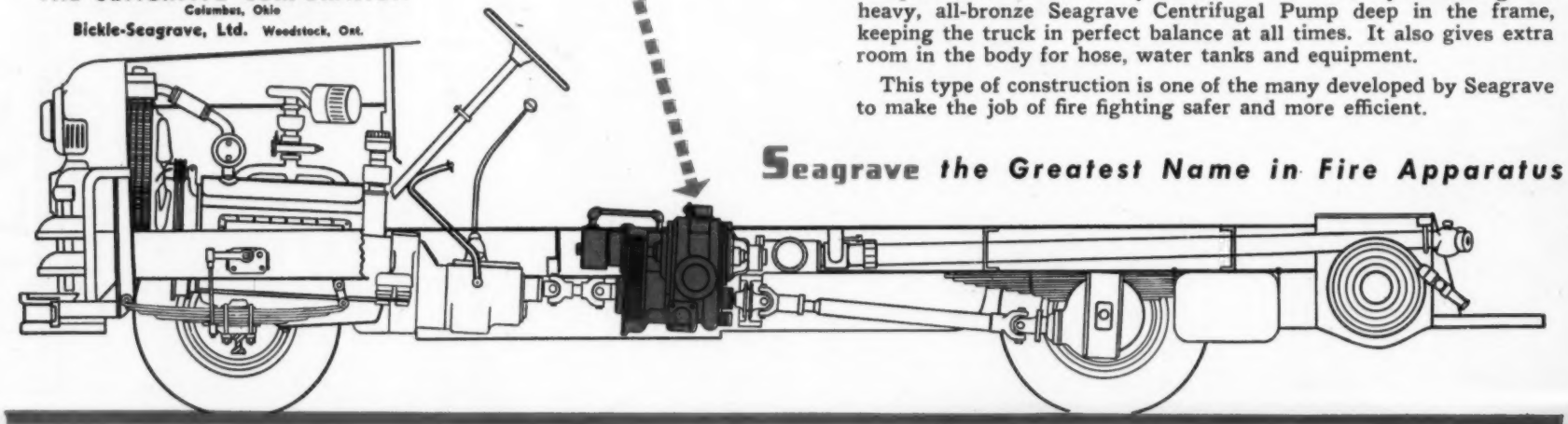
another Seagrave "First"

Seagrave has a reputation for being the safest fire apparatus ever built. It not only has unusual sturdy construction but it also has a greatly lowered center of gravity so that it is always steady on the sharpest turns. This safety feature is achieved by mounting the heavy, all-bronze Seagrave Centrifugal Pump deep in the frame, keeping the truck in perfect balance at all times. It also gives extra room in the body for hose, water tanks and equipment.

This type of construction is one of the many developed by Seagrave to make the job of fire fighting safer and more efficient.

THE SEAGRAVE CORPORATION
Columbus, Ohio
Bickle-Seagrave, Ltd. Woodstock, Ont.

Seagrave *the Greatest Name in Fire Apparatus*



One Hand Operation! Easy-to-handle Rockwood WaterFOG nozzle is made of aluminum alloy, weighs only 5 pounds, 5 ounces. Nozzle design reduces reaction to a minimum.

Boy puts out raging fire

The fuel oil test fire above was extinguished in a matter of seconds by a 12-year-old boy — thanks to remarkable Rockwood firefighting equipment.

By using a lightweight, 10-foot applicator, he was able to approach the fire safely as low velocity Rockwood WaterFOG was discharged through the applicator, quenching flames, choking off oxygen and cooling the surrounding area thus preventing "flash back."

Rockwood WaterFOG is the result of discharging water through a specially engineered Rockwood nozzle that breaks water into tiny particles which burst into a blanketing mist of steam that smothers fire. The Nozzle shown in use here is a 1½" Type SG 48. It can also discharge high velocity WaterFOG, and straight water stream. Available for ¾", 1", 1½" and 2½" fire hose sizes.

Plan to make this and other Rockwood firefighting aids part of your team.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

Rockwood Double Strength Foam Liquid, 3 parts mixed with 97 parts water, forms a quickly re-sealing, solid FOAM blanket or a highly heat absorbent FogFOAM pattern — depending on the Rockwood equipment used to discharge it. Available in 5-gallon cans or 50-gallon drums.

Rockwood Wet, 1 part mixed with 99 parts water, increases penetration and extinguishing action of water. Excellent where fire is deep seated or where water is scarce. Helps reduce amount of time and manpower required. Available in 5-gallon cans or 50-gallon drums.

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Portable Fire Protection Division
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Please send me your illustrated booklet on Rockwood fire-fighting products.

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Title.....

Company.....

Street.....City.....

Zone.....State.....

Those Who Know Insist On HANNAY HOSE REELS

New Ahrens-Fox Truck made for the City of Cameron, Texas, and equipped with HANNAY Hose Reels.

Check the Superior Advantages

HANNAY
ELECTRIC DRIVE
HOSE REELS

Water Resistant
Vapor Resistant
Explosion-Proof

- ★ Extra strong construction to withstand high pressures.
- ★ Explosion-proof, heavy duty motor protected against fog, foam, fumes and water.
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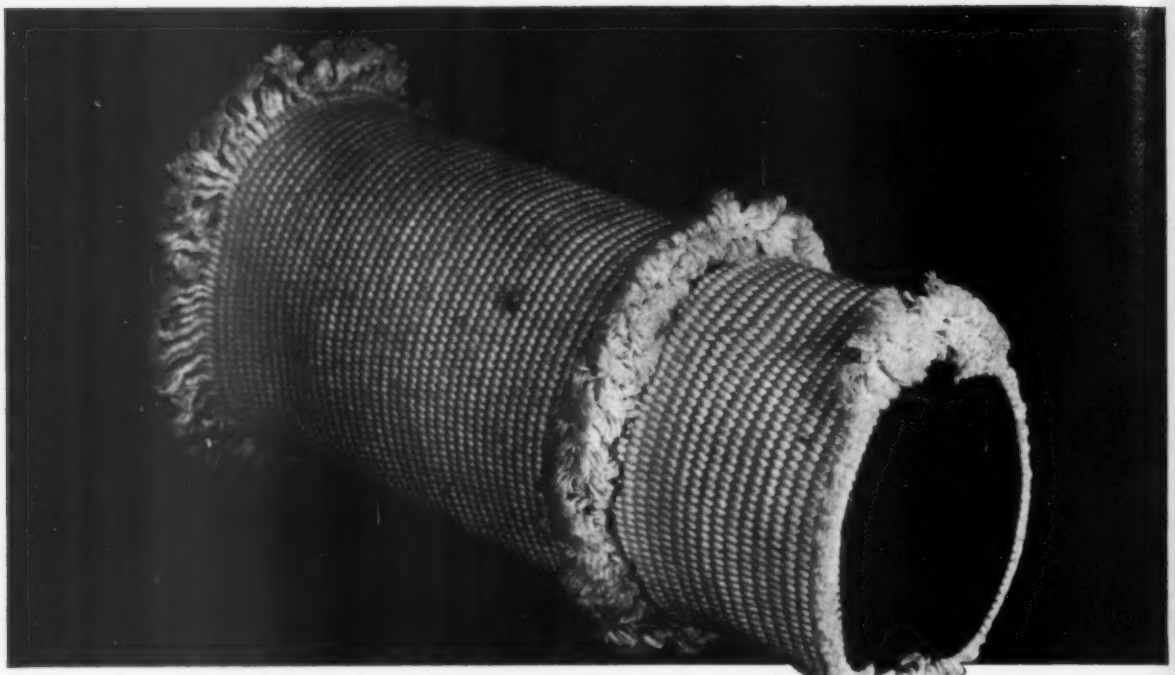

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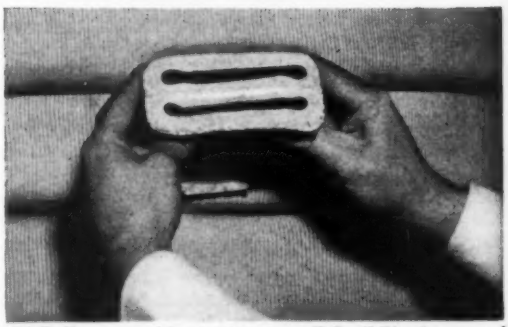

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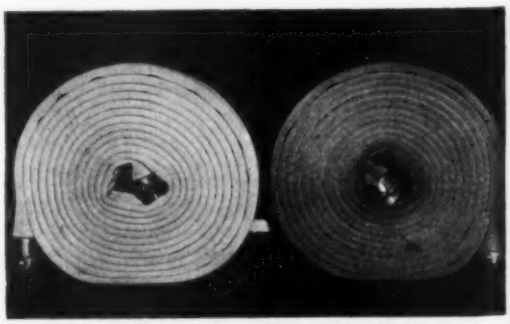

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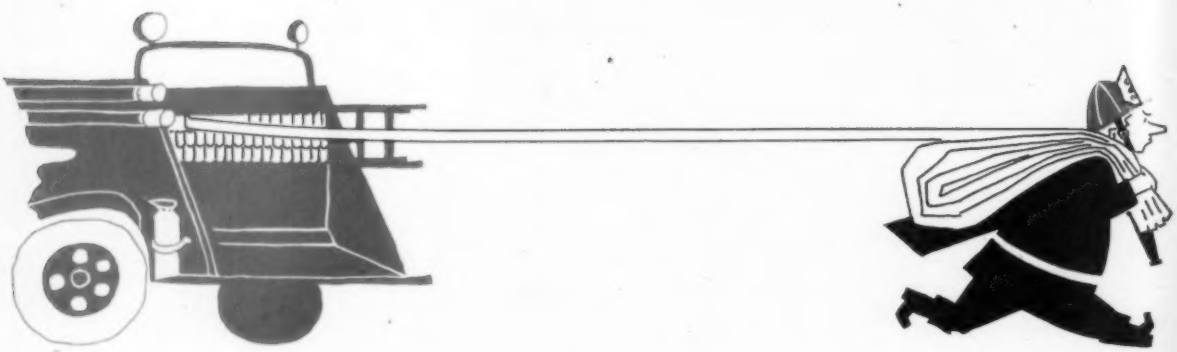

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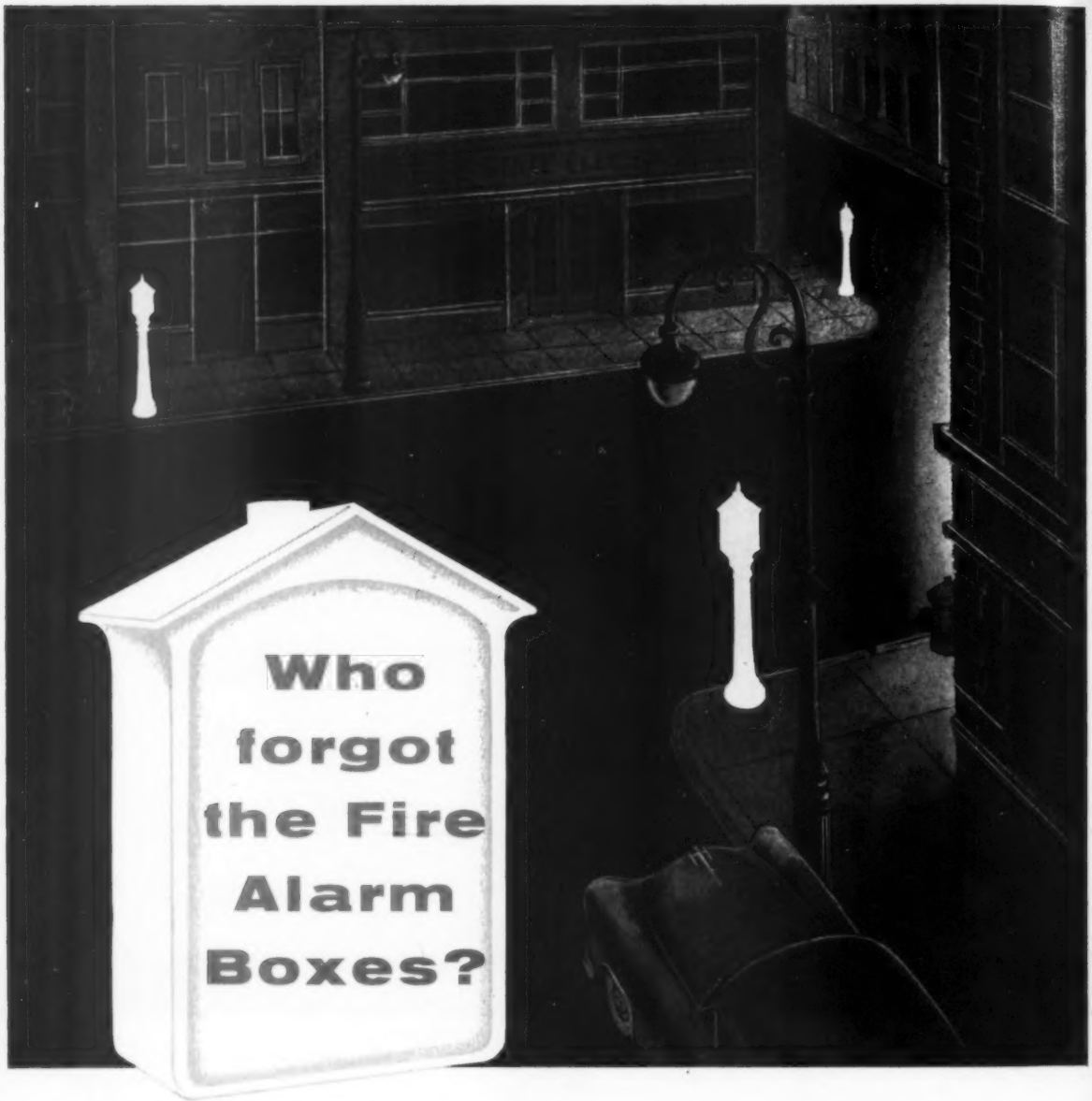

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SEPTEMBER, 1954

FIRE ENGINEERING

VOL. 107, NO. 9

With the Editor

What Price Glory? The other day the Chief of the fire department of a midwestern city announced his resignation as Chief and asked for appointment to the post of assistant chief. He left his job "effective with the appointment of a new chief" because he was "tired of aldermanic attacks, an undermanned department, sabotage of authority in running the department, and too little pay."

It was disclosed that if he were appointed assistant chief, he would go under civil service (which the chief's job does not rate).

This isn't the first chief to ask to be demoted because there were heavy responsibilities and insufficient pay in heading a fire department, whereas compensation was almost as much in playing a less important part. Nor is the middle west the only locale where financially, and in other ways, it just doesn't pay to aspire to be head of the fire department. The situation is not limited to the States; our Canadian brothers suffer from the same complex. As the fire marshal of a certain province writes: "Speaking for conditions in this province, it is a very sad state of affairs that officers' salaries have not kept pace with the increases in the salaries of fire fighters. In some cases the old dollar differential has been maintained, but the former percentage differential and true amount in today's dollars have disappeared. Too often a fire officer is paid only $100 or so a year more than a fire fighter, which is ridiculous in view of the additional responsibilities of senior officers."

Fire fighters of this particular province have proposed new differentials in salaries between various fire department officer grades and both the union members and the fire chiefs in their associations have come out in favor of considering all fire chiefs to be worth "at least two ordinary ranking fire fighters." The chief of a city of 250,000, for example, would be considered "worth two and a half fire fighters," which, it is maintained, is not unreasonable in view of his responsibilities.

We don't know how many years it takes to make a good fireman; many fire chiefs say three years of active service; others say up to seven years. It really doesn't matter, but a fire chief is supposed to have back of him the necessary years of experience and training to fit him for the job. If he comes up through the ranks, as he should, on a basis of merit, and not political pull, ten-to-one he has earned his position by hard work and he deserves to be upgraded and paid accordingly.

What some of our worthy city fathers can't grasp is the fact that while "pride and pomp" used to compensate a chief somewhat for lack of the coin of the realm, today the romance and the glory are fast giving way to the practical business viewpoint of what the job well done will earn.

Those trumpets worn by the fire chief aren't "horns of plenty" by any stretch of the imagination. Today's fire chief must live up to the greater responsibilities, the added duties and demands of his position. That means working more hours, taking more risks, taking on more extra-curricular tasks and spending more of his own "hard-earned" on obligations he simply can't duck, and for which he stands little chance of ever being repaid by his municipality.

If he doesn't live up to the position, if he declines to use his office as an instrument of building goodwill for his community; if he dodges invitations for meetings and dinner dates, and ducks membership in local civic and other clubs and fire service organizations, and refuses to attend conventions and conferences of his fellow firemen, and in general, acts like a recluse because "he can't afford it," you can guess what the attitude of his fellow townsmen will be, and the effect on his own morale and that of his department.

We have repeatedly pointed out that today fire suppression and prevention constitute a business, a "big business" in anybody's language. Politics never put out a fire, but it has "put out" the morale of a fire department. It has, in too many cases, made vulnerable and unattractive the post of head of the fire forces by substituting penuriousness, shortsightedness and short-change, for ability, experience, knowledge and merit. It's time the fire chief's job (yes, and that of every officer grade) was made recipient of suitable reward for services rendered and experience earned—a job to which every fireman from rookie up can aspire and which he can achieve, if he'll work and study for it.

Fred Shepard

$3 Million Fire At Winnipeg Due To Concealed Spaces

Sprinklers Ineffective in Checking Spread As Fire Advances Through These Hidden Channels

By DONAL M. BAIRD

THE effect of high winds as a breeder of conflagrations and a nemesis for fire fighters was well demonstrated by a fire of conflagration proportions which occurred June 8 in downtown Winnipeg, Manitoba. The gale-fanned flames swept through a group of buildings, destroying four business blocks and badly damaging two others, while concentrated heavy streams from pumpers and high pressure system were tossed back into the street by 50 to 70 mile per hour gusts.

With losses over $3 million and reportedly the largest fire in Winnipeg's history, the June 8th fire broke loose when firemen were forced to abandon interior operations on an early morning fire in the multi-occupancy Time Building at the corner of Portage Avenue and Hargrave Street. Attempting to carry on the fight from the outside in the high winds, the Winnipeg fire fighters saw the seven story building become a flaring torch, the radiated heat from which was sufficient to break many windows 150 feet away across the wind.

Operations were frustrated from the start for the fire department, which had been kept on the move all night by the flurry of small fires usual to windy weather. Fire working its way through the walls and concealed ceiling spaces, which were not covered by the automatic sprinkler system in the much altered Time Building, spread through the structure, eluding the firemen. A large metal sign form blocked outside access to the second floor, then the wind took over. Occurring shortly after 1 a.m., the holocaust left a scene of smouldering desolation which shocked citizens on their way to work later in the morning. Such a fire bears out the idea that even the most efficient fire departments with the best loss records must plan for the big one that comes when all the breaks go the wrong way.

Fire bursts from the Time Bldg. under the impetus of high winds, and the Dismorr Block across the street is smoking in the heat. Metalwork of the decorative store front may be seen covering the second floor windows. The Marquee at right is on the seriously exposed, block-long Eaton's department store.

The Time Building, where the fire originated, was a multiple-occupancy, brick joisted and steel frame structure of seven stories, and was built in 1905. Inside partition walls were hollow finish and, due to extensive modernization and alteration, false ceilings created sizable concealed spaces. Plywood and combustible fibre board were used extensively. The building was protected by automatic sprinklers, but not in the concealed ceiling spaces. Elevators were enclosed while the stairway was open. Upper floors were cut up into many small sections with over 70 different tenants. These consisted largely of business and professional offices and a number of small furriers. Principal tenants on the ground floor were a music store, clothing store and shoe store. The Time Building was located on the northwest corner of Portage Avenue and Hargrave Street, the former being 132 feet wide and the latter 66 feet. The other buildings involved were two to five-story brick joisted construction with patent or tar and gravel roofs, housing various offices, apartments, stores, Brinks Express office, quarters of the Royal Winnipeg Ballet and a bowling alley.

According to the Meteorological Bureau, wind velocities were progressively increasing on the day before the fire and by 6 p.m. had reached 40 to 70 miles per hour from the southeast. They continued to increase until a peak was reached at 12:30 a.m. on the 8th, at which time the wind was blowing from the south at from 50 to 72 miles per hour. Rain accompanying the windstorm kept roofs wet. At 1:18 a.m., a police patrolman reported a fire at the Time Building from a callbox.

Just before 1 a.m., the night man at the Time Building let out a cleaning woman and her husband. As they were leaving, they heard fire apparatus going to another fire and the man remarked that the fire must be nearby as he could smell rubber burning. The night man returned to duties on the fourth floor and was unaware of anything unusual

until the fire department arrived in front of the building.

A minute after the alarm sounded by the policeman, a street box was pulled a block away. At the time of these two alarms, six companies were out at fires in other parts of the city, 53 alarms having been received in the previous eight hours. First alarm assignment to the Time Building consisted of one ladder, two pumpers, one hose, one high pressure and one rescue companies under a district chief, and the box alarm was answered by a ladder company and a hose company.

On arrival, the first due companies attacked a fire behind a large neon sign at second floor level. Finding that the fire could not be controlled through holes cut in the sign, the sign was ordered pulled down. A sizeup of the inside of the first two floors showed that the fire had extended through the floors and walls at these levels. Lines were ordered into the building and pumper lines laid into the sprinkler connection while a stock of pianos in the basement was covered. At this time, official reports indicate, there was no sign of automatic sprinkler heads operating although the central office of the Dominion Electric Protection Company received a water flow signal for the building at 1:30. Firemen attempted at get at the fire in the walls and ceilings, reinforced by a radioed second alarm assignment of four companies at 1:59 a.m.. The sprinkler alarm brought four more companies, the equivalent of a three alarm assignment now having been despatched. The Chief of Department, David Clawson, and two deputy chiefs responded on the second alarm.

The fire was still advancing through concealed spaces without actuating sprinkler heads and had reached the third floor. When false ceilings on the ground floor were pulled down, sprinkler piping tore away from its heavily burned supports, crippling the system. With the fire quickly penetrating the upper floors through concealed spaces, and the sprinkler system obviously rendered useless, the decision was reluctantly made to withdraw and work from the outside in the gale. Falling debris forced the last men out.

Aerial ladder pipes and deluge sets were set up with increased pressures from the high pressure system. An attempt was made to cut the fire off at the third floor, but the ornamental metal sign structure blocked the second floor windows and efforts to remove part of it were hazardous, as the wind whipped the sheet metel. Ladder work was also rendered dangerous by the wind, and even the heaviest streams were broken up and deflected so as to make them ineffectual. Streams at times could not even penetrate the second floor windows. A pumper company was special-called at 5:01.

In spite of every effort, fire spread through to the roof, and steps were taken to protect exposed buildings. The fire department was able to confine the fire to the Time Building until after 5:30. As flames took possession of the building and burst out at all floors, the seven story structure became a torch in the gale. Shortly the east wall crashed into Hargrave Street, showering fire department equipment with debris. With the removal of the east wall as a heat barrier, the intensity of the radiant heat quickly ignited the three-story Dismorr Block across Hargrave Street.

The morning-after wreckage of the Winnipeg conflagration, showing the ruins of the 7-story Time Bldg. at left, the Dismorr Block across Hargrave Street and the great width of Portage Avenue.

This situation brought the transmission of the third alarms at 5:53 a.m., to which another four companies and 145 offshift men responded. The flames next jumped to the upper floors of the five story Norlyn building west across an alley from the Dismorr Block. Then a portion of the west wall of the Time Building collapsed, extending the fire against the wind into the adjoining two story building housing the bowling alley and stores. The fire force was now heavily engaged, and the fire made its way from the Dismorr Block through the adjoining Edward building on the east to the firewall separating the Edward and Affleck buildings where it was finally stopped, not without heavy damage to the latter.

With the collapse of the east wall and the turning of the Time Building into a well-fanned inferno, a severe radiant heat exposure arose in the block-long, eight-story department store of the T. E. Eaton Company in spite of its distance of over 130 feet across Portage Avenue. The coping of the roof reportedly deflected the heat down against the windows and a considerable number of the windows required replacement. A water curtain was set up by the fire department with two high pressure lines until the private brigade of the store was able to relieve them. This latter organization was said to have had 21 streams in operation from the store's private waterworks system during the height of the fire, providing a highly effective water curtain. Although radiant heat was the principal means of fire spread, one fire department company was put on flying brand patrol.

At 6:08 an alarm was sounded from a master box in the Eaton store, bringing the final response to the fire. Two ladder and two hose companies brought the total of working companies up to 26. Upon the arrival of offshift forces, the fire was soon confined and was reported under control at 6:15. After the sounding of this fourth alarm, only one hose company was covering the city until additional offshift men responded to man reserve apparatus, and the first company reported back in service from the fire at 6:28. Two alarms were received while there were only two companies in service, but these were for minor causes.

Final control was achieved by the Winnipeg Fire Department with the assistance of firewalls on the east and west and the great width of Portage Avenue on the South. Three ladder pipes and eight other heavy streams were used in addition to numerous handlines. Six pumpers were hooked up to the domestic waterworks system, and the high pressure system was operated at pressures up to 220 pounds. A peak rate of about 9,000 gallons per minute was supplied by the two systems. A total of 17,700 feet of 2½ and 3½-inch hose was laid in 36 lines. There were thirteen casualties, all of comparatively minor nature and these were suffered by fire department personnel. About $9,000 worth of fire department equipment was lost.

Cause of the fire is not known, but according to the report of the Manitoba Fire Commissioner's Office, it may have occurred in electrical wiring between the first and second stories. Failure of the automatic sprinkler system to control the fire in the Time Building has been attributed to the origin of the fire in concealed spaces and the size and extent of these spaces in the walls and ceilings.

Editor's Note: The following data on the functioning of the high pressure system during the fire was supplied by W. D. Hurst, City Engineer of Winnipeg:

"Winnipeg is one of the few cities on this continent that has both a separate high pressure and a domestic system. In the high pressure system, upon the receipt of the first alarm, the pressure is raised from 75 pounds per square inch normally maintained in the system to 125 pounds per square inch. On the

(*Continued on page* 785)

Firemen Effect Rescues at Big Connecticut Plane Crash

Preparedness in Form of Mutual Aid and Training Pays Off in Rescue and Extinguishment Operations

A SPECIAL REPORT

Editor's note: **This special report of the fire fighting and rescue operations following the forced landing of the Air-France Constellation at Preston City, Conn., offers many conclusions that the nation's fire service may well take to heart, Above all, it disproves the fatalistic theory held by many professional fire fighters that there isn't really much that a municipal fire department can do under such emergency crash conditions because almost invariably everybody in the wrecked plane is, or will be, dead before the department can get on the scene and into action.**

Similar situations can occur in any populated area of this country. No fire department is too small, or too large, to ignore the possibilities of air crash of some sort, commercial, military or private plane, within its own district, or neighboring area. None should ignore planning and training for such potential disaster.

The editors are indebted to Fire Chief W. Henry Kaufmann, of the Voluntown, Conn., Fire Department for the very comprehensive data and photographs upon which this Special Report is based.

WHEN an Air-France Constellation plane pilot arrived over New York City's International Idlewild Airport on the morning of Aug. 3, last, and passed up an opportunity to land, he sent in motion a chain of events that brought to fire fighters of New London County, Conn., action-packed drama out of which came the rescue of 29 passengers and the crew of 8 from almost certain death.

Most of this dramatic incident has been told by the press, radio and television, but the chapter of the story written by the firefighters, most of them volunteers, received only cursory mention. It is this phase of the account which constitutes the basis of this report.

First let us quote the statement of the Civil Aeronautics Administration on the circumstances leading up to the crash:

"At 8:45 A.M. today (Aug. 4, 1953) EST, an Air-France Constellation was involved in an accident at Preston City, Conn., six miles east of Norwich. There were 37 persons aboard, including 29 passengers and eight crew members.

"All were evacuated and there were no fatalities.

"The plane was due here (Idlewild) at 7:21 A.M., EST, and at 7:36 A.M., EST, the weather at Idlewild Airport was 700 feet, scattered, measured 900 feet broken and 1,700 feet overcast. Visibility was two miles in rain and fog. The pilot was making an instrument landing approach monitored by surveillance radar. The final stage of the approach was monitored by precision radar.

"When four miles from the end of the runway (the approach end), the pilot reported he was beneath the clouds.

"The next transmission received was that he was executing a missed approach. During this procedure, he asked for Boston weather information. He was cleared by Idlewild approach control and the air traffic control center to go to Boston.

"En route to Boston the pilot made an emergency call to the Providence, R. I., airport control tower and was cleared for an approach to the Providence Airport.

"Difficulty was encountered in receiving his communication.

"At 8:29 A.M., EST, the Air-France plane reported to the Providence tower that he would not land there. No position report was received.

"The C.A.A. allerted the Quonset, R. I., Naval radar when the aircraft reported an emergency.

At 8:32 A.M., EST, the plane asked for Quonset weather. That was the last known contact."

It was disclosed that although the ceiling was practically zero, several other planes were brought down before and after its arrival over Idlewild. As his gasoline supply was running dangerously low, the pilot evidently decided to set the craft down in an emergency landing through the dense murk and downpour of rain. This decision was made no doubt during his circles over the area east and north of International Airport.

One of these circles (according to witnesses, the sixth over the same general area) brought the plane low over the little farming community of Preston City, Conn., which is about ten miles north of New London and the same distance from the Rhode Island border. Norwich, six miles south, is the largest city near the village. Potato fields dot the landscape, and it was soon apparent to those in the area that the pilot was trying to set his plane down in one of them.

Fire Chief Arthur Barry of Preston Volunteer Fire Company 1 got up from a sickbed to investigate the situation and decided that he had better send in an alarm because there was no doubt the plane was in difficulty and was going to land, and not far distant.*

Chief Barry telephoned the dispatcher at Norwich, which is the communications center for nineteen fire departments in the area, and briefed him on the situation. The dispatchers, meanwhile, had been made aware that the craft was in difficulty but did not know exactly where it would come down, so they had withheld transmitting any alarm until they could be sure just which companies in the county were nearest the scene.

As soon as Chief Barry's message was received and it was apparent the plane was down in the area, the alarm was transmitted to Preston Company No. 2, five miles away; Voluntown Company No. 1, seven miles away; Griswold Company No. 1, six miles away, and Engine 3 of the Norwich City Fire Department. The off-shift men of this department were called and the crew of its foam truck notified. Chief Barry named as rendezvous point the "Bennett Store" which he was sure would prove an advantageous central check point.

However, in the meantime, the plane

Air-France Constellation still burning in farmyard. Griswold and Voluntown firemen attempting to enter plane to complete search for victims.

*Actually the plane was so low it clipped the aerial on the chief's home.

Preston and Norwich firemen subduing fire in debris of garage.

had landed in a patch of swampland, bounced over some woodland and slid on its belly about a mile across the fields of potatoes until it came to rest against some large elm trees and the barn and garage of Valentine Sebastian in the town of Preston with a violent crash, just ten feet from the rear door of the Sebastian residence. The garage, containing an automobile and other equipment, was reduced to kindling.

New London County Mutual Aid Swings Into Action

At this point it might be well to describe the mutual aid setup of the area of Connecticut in which the crash occurred. The New London County Fire Chiefs' Association, of which all the before-named companies are members, and of which Fire Chief Kaufmann is president, consists of all fire companies, paid and volunteer, in the County, and numbers about 50 organizations and 150 men, chiefs and assistant chiefs only, being eligible.

The organization is completely radio equipped, every company having one or more pieces of apparatus with mobile sets. Also, many of the volunteer chiefs' cars are similarly equipped.

Base stations are strategically located so that they cover every part of the county. Every department has a complete inventory of all the equipment of every other department in the county. Response is on orders of the dispatchers at the Norwich central control, except on still alarms, to which the companies respond direct, and immediately notify the dispatcher.

All of the above applies to Windham and Tolland Counties also, which practically makes all three northeast counties a single organization for operating effectiveness. The radios in all the counties are on the same wave-length and many times companies from two different counties respond to the same fire if it is along the border. Each county has a chief who acts as Civilian Defense Coordinator and who works with General Hesketh, head of Civil Defense in Connecticut.

The General appointed a fire officer who attends the meetings of the county organizations and he in turn informs the state organization as to the needs of the fire departments, and also what they are planning along rescue and disaster lines. In many towns, the civil defense director is the fire chief. All of this has welded the state, counties, and towns into a high standard defense organization and has completely eliminated the friction that is apparent in some states between the fire service and defense units.

When the Norwich dispatcher sounded signal 23 (disaster or air raid alarm) every company in the three counties was alerted and kept radio silence, although they were aware at all times of exactly what was going on. Chief Leo Viscovi, of the U. S. Submarine Base at New London, alerted his foam company and put it on a stand-by basis while he and his assistant chief set out for the scene of the incident, keeping in touch with developments by means of radio in his car. As he has had considerable training in disaster work and is a drillmaster at the New Haven Fire School, his aid and suggestions were invaluable to Chief Kaufmann.

Fire Follows Crash

The arrival of Fire Chief Barry and his Preston volunteers was timely and fortuitous. They lost no time starting rescue operations. The plane was badly damaged in the crash. No fire was apparent at the time the men set to work but it was only a few minutes after they arrived when there was a loud explosion as the gasoline vapors escaping from the wrecked auto were ignited by the plane's hot engine.

Notwithstanding the fire, which spread rapidly to involve the fuselage of the plane, firemen, aided by a 1½-in. line with fog nozzle managed to remove all the passengers from the wreck, although some of them were severely injured—many being strapped to their seats when the fire started.

Fire fighters were driven back several times due to explosions as the plane's nearly empty tanks started to erupt. As the last passengers were being taken from the wrecked plane, Voluntown Engine 1 arrived with Chief Kaufmann in charge. At this stage, Chief Barry, who was quite ill, turned the command over to Chief Kaufmann, who was immediately greeted with the report that ten persons and two babies were still in the plane.

Demand-type air masks were donned by members of the Voluntown Company but the men were driven back by the intense heat. Fortunately, it was later determined that the report of persons trapped in the burning plane were false, nonetheless this delayed the laying of hose lines momentarily. As the efforts were being made to reach the interior of the plane, Preston Engine 2, under Chief Ernest Weisse, arrived, followed by Griswold No. 1 with deputy chief Andrew Bondchuck in charge, and the Norwich City contingent commanded by Chief William Confrey.

Chief Confrey, knowing from the inventory that none of the companies responding were equipped with foam, without hesitation ordered his foam apparatus and a large quantity of powder to the scene. This proved a valuable asset and helped to hasten fire fighters' control of the fire. Thirty-six cans of foam powder were used, operated by a 2½-in. line laid from Preston's No. 1 unit, which took suction from a shallow

(*Continued on page* 783)

Voluntown firemen work foam line into nose of plane. View shows nose of craft near tree against which it partially came to rest.

Fire Service Ventilation in Principle and Practice

How Mechanical Ventilation Works Out in Actual Practice. An Outstanding Case History—the Philadelphia Reading Terminal, Sun Ray Drug Store Fire

By ROI B. WOOLLEY
Assistant Editor

Editor's Note: Part IX of this series on fire service ventilation which appeared in the August issue actually concluded the technical review and study of this interesting and important detail of fire control and extinguishment.

Of necessity, the preceding installments included only a limited number of case histories of actual fires. This was particularly true with those chapters dealing with mechanical or powered ventilation, where only one or two examples were recounted, and these only briefly.

One reason for this is that very few American fire departments make regular, consistent use of powered ventilation equipment, smoke ejectors, eductors, and air movers such as fans, circulators, etc. Still fewer have had occasion to utilize all such facilities at a single fire.

One exception which came to the attention of the author, was the stubborn, smoky fire in the sub-basement of the Reading Railway Office Building, Philadelphia. From the viewpoint of the student of modern fire suppression, this fire "had everything." Outstanding, however, in the operation, was the manner in which ventilation was accomplished, resulting in confining the fire to minimum area, and to minimum property destruction, while affording fire fighting personnel maximum protection against heat and noxious fumes and gases.

Through the courtesy of Deputy Fire Commissioner and Chief of Department, George E. Hinck, and officers and members of the Philadelphia Bureau of Fire, we are privileged to bring our readers this most interesting and instructive case history including the illustrations by Lieut. Kennedy of the Bureau. We suggest this report be studied in relation to the previous chapters of this series, and we hope from it readers will be encouraged to intensify their studies of theoretical and practical ventilation—and add to their fire forces the latest in mechanically powered air movers and extractors.

MEASURED by actual property loss, the sub-surface fire in the Reading Terminal Railroad, Office Building, 12th and Market streets, Philadelphia on the evening of January 3, 1954, was nothing exceptional. But measured by potential destruction, and as an example of unspectacular but scientific fire control in the face of multiple handicaps most feared by professional fire fighters, it was outstanding. Few fire histories that have come across the author's desk have evidenced so convincingly the value of coordinated attack, utilizing the latest approved attack methods, and facilities, and of pre-planning and preparing for such fires.

That this fire extinguishment operation in question scored what the property owners and occupants called a sensational success is a tribute to the progressive policies and programs of the Philadelphia Bureau of Fire which, in a word, provide its fire force with most advanced scientific equipment and apparatus—and constantly train and instruct the personnel in their use. Only such scientific an operation could hope to confine and subdue such a stubborn, inaccessible fire without serious injury to fire fighters, or to the very considerable tenant occupancy.

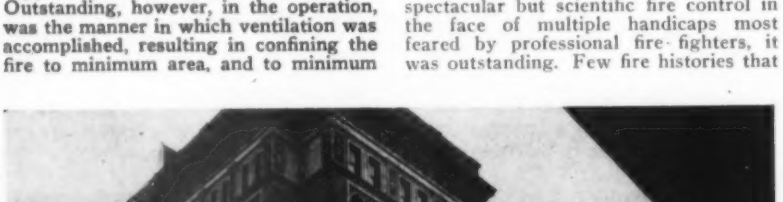


Photo courtesy Philadelphia Bureau of Fire

Old style building, with high-hazard occupancies on ground floor, large storage area in sub-basement. Fire was held to sub-surface regions by prompt, efficient work of fire department.

Property and Exposures

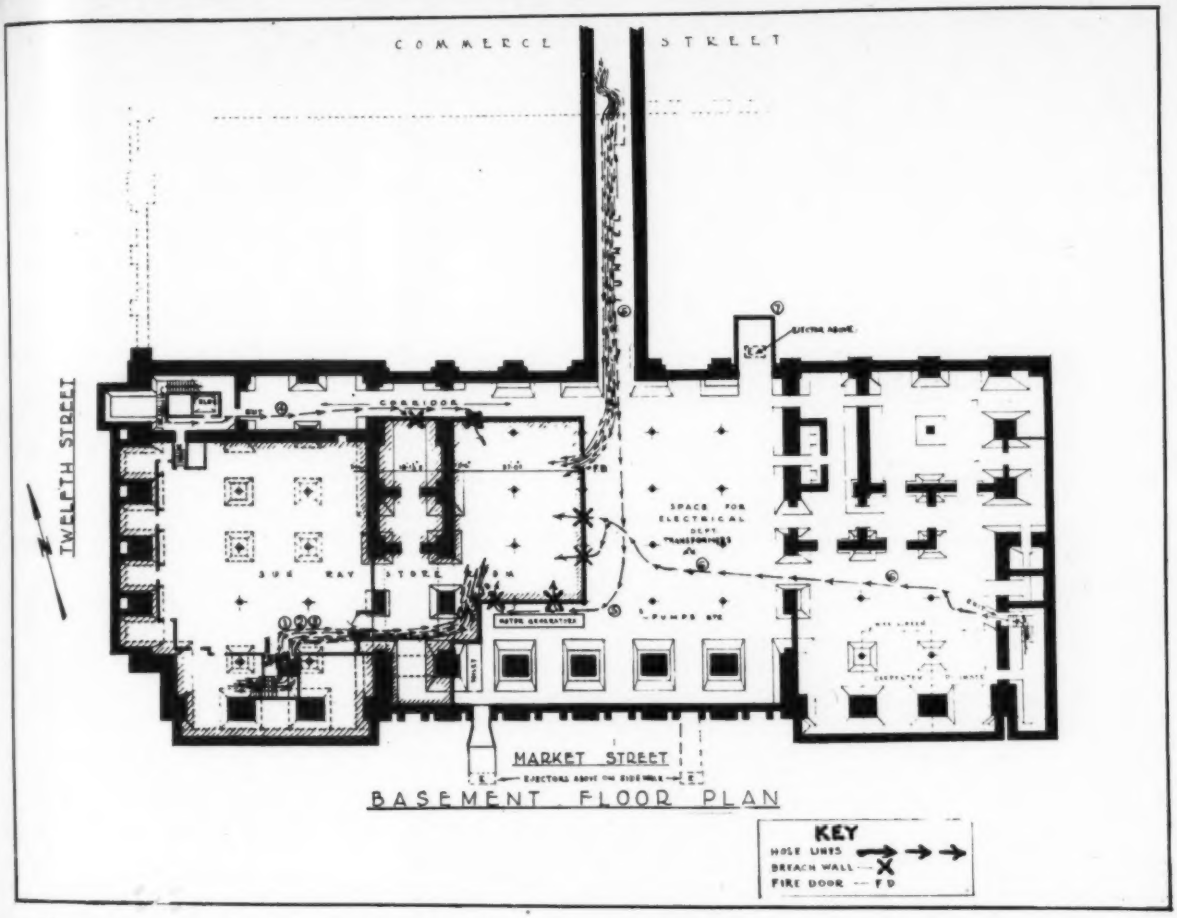
The scene of the fire was the Reading Terminal Office Building, in the heart of Philadelphia's retail high value district. The building, erected in 1922, measures 266 ft. by 80 ft. and is two to nine stories; construction is brick masonry, steel girdered, cased in mackite and plaster. The structure was unsprinklered, with the exception of the head-house on the ninth floor.

The Office Building interconnects in the basement with the eight-story, steel girdered Reading Terminal Annex, 52 ft. by 80 ft., of reinforced concrete throughout and fully sprinklered. This was built in 1925.

Occupancies of these two buildings included on the street floor the Sun Ray Drug Store, at the southwest corner of 12th and Market; the Horn & Hardart Cafeteria; Arrow Men's Haberdashery and Clothing Store, and the Lobel's Children's Clothing Store. Above the first floor were offices and miscellaneous occupancies including the Reading telephone exchange with 10 operators on the eighth floor.

Between the Horn & Hardart Cafeteria and the Arrow store on the Market street side, are escalators and steps leading down to the lobby and train floor of the Reading Railroad. On the 12th street side are escalators and steps between the 12th street entrance of the Terminal Office Building entrance, and the rear delivery entrance of the L-shaped Horn & Hardart restaurant, which also lead to the train floor of the Reading Railroad.

The old Reading Terminal Office Building and basement was equipped with a standpipe system supplied by a Worthington steam pump. This was not used during the fire as fire fighters



considered the municipal water system adequate.

The fire area was located below the old Terminal Office Building in a sub-cellar, adjoining the basement of the Sun Ray Drug Store, 50 ft. by 37 ft. and below Horn & Hardart's restaurant. Here in partitioned cubicles were stored quantities of pharmaceuticals, cosmetics, tobacco, drugs, appliances, food supplies, household goods, toys, and miscellaneous goods.

Adjoining this storage room, and also located under the restaurant and lobby of the office building is the electrical department motor room, a large area containing oil cooled transformers which convert the 13,200 volt current to 440 and 220 volt required in the building above. At the start of the fire, the power house foreman was notified to shut down all electric service.

It is reported about 400 customers and clerks were in the Horn & Hardart Cafeteria and another 100 in the Sun Ray store where the fire started. These were all evacuated without injury. Fire control operations, including the prompt and thorough venting, made it unnecessary to remove occupants of the upper stores, who were not endangered.

Story of the Fire

At 7:04 P.M., Sunday, Jan. 3, 1954, an assistant manager of the Sun Ray Drug chain noticed smoke filtering under the sub-basement doorway leading to the storeroom area. He broadcast an alarm over the store's public address system and notified all people to leave the premises. At the same time the 400 patrons of the cafeteria were told to leave the restaurant.

Simultaneously, Aero Alarm No. 512 of Consolidated Alarm System, was actuated from the sub-basement storeroom and the alarm put through to the Electrical Bureau at City Hall. A local alarm was transmitted, bringing out Engine 20 (Commerce and 10th) Ladder 23, and Battalion Chief 4.

Box 884 corner 12th and Market was struck at 7:10 P.M., bringing three engine, one ladder and one rescue companies, a battalion and a deputy chief.

The cause of the fire was not determined due to the almost complete destruction of the contents of the area where the fire started. That it had a good start was evidenced by the extreme superheated smoke and gases encountered by the firemen at the very outset.

In the opening stages of the struggle, as attempts were made to locate the seat of the fire and its extent, and before any masks were donned, fire fighters were driven back repeatedly by the heat and fumes. The lieutenant of Engine 4, taking part in the initial attack, operating from the drugstore basement doorway, was partially overcome by smoke and removed to the outer air, where he was revived and returned to the fire scene. This, and punishment encountered by other fire fighters, together with the survey by chief officers, impelled Deputy Chief Lord to sound a second alarm at 7:24 P.M., which brought Fire Commissioner Frank L. McNamee and Deputy Fire Commissioner, Chief of Department George E. Hinck to the scene.

By this time it was evident the battle would be long and gruelling. All-purpose masks, which were ordered on as soon as smoke conditions were apparent, proved inadequate for operation in the sub-surface, poorly ventilated areas. It was apparent that every facility of the department for ventilation would be required.

Chief Hinck, realizing the problem of ridding the structure of the superheated atmospheres to both protect the men and to reach the fire with fog and straight streams, and with the information provided by his aides and building occupants quickly mapped out the plan of action. All operations were carried out under his direction and supervised by Assistant Chief Joseph M. Clarke, Deputy Chiefs William A. Haas and Augustus P. Lord, and Battalion Chiefs Frank Finestone, Henry Kincy and Frank Mellon.

Responding on the second alarm were the Special Service units known as S.S. 100, and S.S. 101, tender to S.S. 100, carrying additional supplies of wet water, foam, with smoke ejectors, circulators, etc.

Personnel Protection—Masked Men Covered by Fog

A noteworthy factor in this planned strategy was the combination of facilities and methods employed to protect the men operating below surface levels

against both the smoke and heat and possible explosion due to ignition of charged areas. As said, lack of oxygen, and the superheated atmospheres, making service type masks ineffective, the crews were equipped with demand-type air masks. Only personnel so equipped were permitted in the effected areas. The men were divided into groups of four and roped for signalling and safe advance and retreat if necessary. They were further aided by fire department floodlights set up in the dark sub-basement and, of further interest, they were protected by strong water-fog patterns. In addition, each advancing eschelon was supported by stand-by lines.

Reserves of air cylinders were moved in by the Special Service together with special smoke-removing devices as an essential detail of the action. As each man's cylinder was exhausted, he received a replacement from the rescue squads. As operating crews were withdrawn for rest (men were not permitted to remain in contaminated atmospheres, working on lines and with forcible entry tools, more than 10 minutes at a stretch) fresh personnel took their places.

Approximately 45 demand type air masks were in operation, being constantly refilled at manifolds by the Special Service Section, whose personnel set up an emergency refill station on the fire ground.

Early in the attack emergency escape routes were indicated for crews that might be caught in any sudden flarebacks or explosions. Possibility of the latter, although always present in such underground operations, was greatly reduced as venting operations got under way. Furthermore, as stated, attack crews had, as additional protection, ample water fog which also, in some measure, aided basement ventilation.

Ventilation the Key

Perhaps the greatest contrast between the handling of this sub-basement fire, and others in somewhat similar occupancies in years gone by, was the method of venting the charged and contaminated areas. Not only did this aid in protecting fire fighters, and in prosecuting the attack on the fire, but it effectively reduced smoke damage in the stores above and removed smoke hazards from the upper floors. It also served to permit some operation of railroad trains and the station which otherwise might have been shut down for an indefinite period.

As noticed on the diagrams of the ground floor and basement, the channels of possible ventilation of the sub-basement area were limited. There were no straight channels or shafts, or other arteries, through which the smoke, heat and gases could be drawn off by natural cross or other ventilation. Even mechanical venting, which was resorted to extensively, had to operate somewhat remotely from the actual fire area.

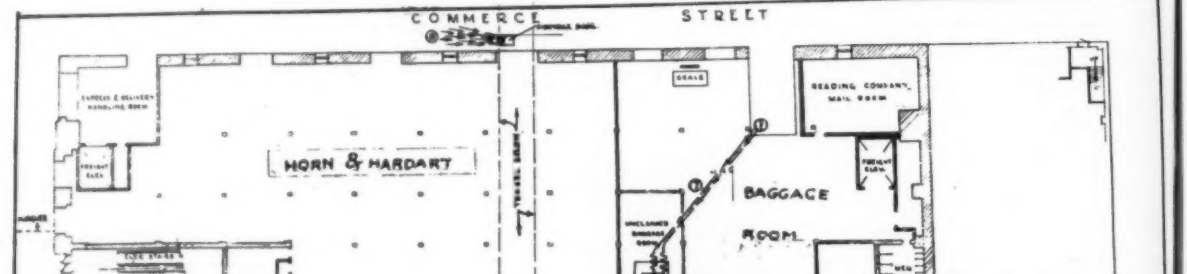
No effort was spared to employ every form of ventilation, both above the fire, and wherever possible, through the channels leading to it. In this procedure only one large display store window on the Market street side was removed. Walls were breached where the openings would permit escape of heat and gases, and where streams could be brought to bear on the fire. Transom windows were removed in the Sun Ray Drug Store and Horn & Hardart Cafeteria for cross and upward ventilation. A power chainsaw, incidentally, helped make a clean and quick clearance of part of the show window display partition. This opening was over the basement entrance of the building.

Large smoke ejectors, with 18-in. suctions, and ventilator ejector suction fans were placed at strategic locations on both sides of the building, to remove the dense superheated smoke and choking gases. Suctions of the trailer-ejectors (the extra large smoke ejectors) were located at pavement ventilating gratings on Market street and over a large drop in the rear of "Unclaimed Baggage Room" (see diagram). All possible overhead gratings and coverings were removed.

The Arrow and Lobel Stores were opened by protective agencies, whose men set about ventilating them. Some smoke entered the railroad lobby by means of the escalator passageway and for a time rail-trainmen guided trains in and out of the station by lantern; train service was never fully interrupted, however. Some smoke drifted into the Market street subway concourse but not sufficiently to interfere with the movement of subway trains.

An indication of the effectiveness of the ventilation methods employed is found in the fact that smoke, most of it removed by natural or mechanical venting, could be detected miles away from the fire. The weather at the time of the fire was cool; temperature 36 deg. F.; wind 9 M.P.H., west; humidity 75%.

As is indicated on the diagrams, there were four major points of attack on the fire by way of the basement. In addition, there were lines brought to bear on the fire through overhead openings in the first floor.



FIRST FLOOR PLAN

Photo courtesy Philadelphia Bureau of Fire

Chute through which entrance was made from rear of Terminal Building, north side, showing hose lines and spotlight illuminating opening. In this attack, illuminating equipment, breathing apparatus and protective fog patterns were a contributing factor to fire control.

Photo courtesy Philadelphia Bureau of Fire

Left: Every available street and sidewalk opening was used to vent contaminated sub-surface atmospheres. Here smoke ejectors and portable generators are used to vent below street-level areas. Scene is on Market street side. Right: Any extensive sub-surface fire control operation may need plenty of reserve respiratory protective equipment. Here on the 12th street side, the fire department mobilized reserve cylinders of air for the stubborn sub-basement struggle. Note firemen with rope and light about to descend into the basement fire area.

Photo courtesy Philadelphia Bureau of Fire

Ample light is essential for night ventilating operations. Philadelphia fire fighters guard sidewalk openings through which smoke extractors are venting stubborn Reading Building basement fire. Note collapsible tubing of large ejector in sidewalk opening.

From Point #1 a 2½-in. line was laid to the basement doorway through the Market street side of the Sun Ray store to attack the fire from the front with B-190 G.P.M. fog nozzle. Additional lines were laid through the corner entrance (Point #2), 12th and Market streets, attacking from the front with B-190 G.P.M. fog and B-500 G.P.M. fog nozzles. Chiefs Haas, Lord and Finestone supervised operations at the front where an additional line was stretched through the 12th street entrance (Point #3) of the Sun Ray Drug Store.

At Point #4 2½-in. lines were laid through the entrance to the Reading Terminal Building and down the basement steps to the fire area. Lines were stretched through the tunnel which interconnects with buildings running perpendicularly to Market street (Point #5). These two points of attack were under supervision of Assistant Chief Clark, aided by Battalion Chief Henry Kincy.

The remaining lines were laid from Point #6 through the entrance of the Reading Terminal Annex past the Carpenters' and Plumbers' Shops, down the basement stairs and through the Electrical Department Motor Room, under command of Battalion Chief Mellon. The hose lines in the tunnel (Point #5), which was used as a basement chute and runway for receiving stock at the sub-basement storeroom, were placed through steel pavement doors on Commerce street, to attack from the north.

Firemen under direction of Assistant Chief Clarke operating on the north side, devoted particular attention to the high voltage room of the Reading Railroad and although the system was de-energized, hose streams and fog were so used that none of the electrical equipment in the immediate storeroom area suffered water damage.

To those who like to apply the slide-rule to operations these further details may be interesting. Each length of hose leading from doorways or entrances measured approximately as follows: From Market street side (Point #1) through Sun Ray: 75 ft.; from corner entrances 12th and Market streets (Point #2) through Sun Ray Drug: 120 ft.—all attacking from the south with B-190 fog. From Commerce street down through pavement doors (Point #5), through the tunnel, attacking with B-190 and B-500 fog, and penetrating streams: 150 ft. from the east and south; and from Market street down the basement stairs of the Reading Annex (Point #6): 200 ft., attacking from the east with B-500 fog through the Electrical Motor Room and (Point #7): 50 ft. with a standby line at the Unclaimed Baggage Room.

All-told, 600 ft. of 3½-in. hose, 4350 ft. of 2½-in. hose and 350 ft. of 1½-in. hose was stretched during operations. The smaller hose was employed largely in mopping-up operations. Water was used only as required, that is, when actual fire could be reached, or men were to be protected.

It was almost two hours before Chief Hinck or his aides were able to determine just what was burning. That it was highly combustible material was indicated by the heat given off. That some of the contents were toxic was suggested by the choking smoke. The heat was so intense that it buckled a 20 by 15 ft. section of the marble floor of the Horn & Hardart Restaurant. The flooring did not break but raised about 4 in. Firemen later drove a hole in this floor to examine the damage. Another floor opening was made as nearly over the fire as possible and a distributor used at this point.

The fire was confined to a space approximately 175 sq. ft. in the storeroom. The steel girders, encased in mackite and plaster, withstood the extreme conditions and suffered no serious damage, it is reported. The large unprotected cast-iron columns supporting the floor likewise were uninjured. The fire was declared under control at 10:45 P.M., but the problem of overhaul and salvage occupied firemen for many hours.

Total attendance at the fire was as follows: Chief officers 10; company offi-

(*Continued on page 786*)

Insecticides Warehouse Fire Fells Pomona, Calif. Firemen

By PAUL C. DITZEL

(*Editor's Note:* **Paul C. Ditzel, FIRE ENGINEERING's correspondent in Southern California, covered this unique fire for his newspaper, "The Los Angeles Daily News," and this magazine. FIRE ENGINEERING is indebted to Chief Root Crawford of the Pomona Fire Department and Captains Don Wilson and Leo K. Najarian of the Los Angeles Fire Department for technical assistance.**)

THE fire that's encountered perhaps only once in a chief's career usually presents unique problems of control and extinguishment. And, especially in this age of technology, the fire service is bound to be confronted with these peculiar one-in-a-million fires.

The Pomona, California, Fire Department faced one of these rarities on June 17, 1954, when they responded to a major outbreak that fully involved a warehouse containing an assortment of insecticidal mixtures. The blaze and its aftermath are of special interest to the fire service, particulary in rural areas.

The Pomona Department received the alarm at 11:15 P.M., and upon arrival found a wood and metal warehouse, approximately 120 feet wide and 80 feet deep, fully involved. The property was owned by the Charles E. Duggan Co., an insecticide distributor. An inspection prior to the fire showed that lethal insecticides were stored on the east side, rear, of the building. The night of the fire, however, the warehouse was loaded with drums and bags of various insecticide mixtures. These included about four tons of 50 per cent Parathion powder in paper bags in one end of the building, three-fourths of a ton of 25 per cent Parathion powder in bags in another end, plus two 30 gallon drums of Parathion-xylene mixture, eight gallons of Systox and six gallons of TEPP (both extremely toxic compounds) in other parts of the structure.

Patent Poisons

Parathion, commonly used as an insecticide in commercial agriculture, is a by-product of World War II, when it was used by the German government in developing war gases, especially "nerve gas." Parathion is the most popular of the insecticides in the organic phosphates family and has come into more widespread use in the past few years. Because of their potency these insecticides undoubtedly will be encountered more frequently in the future by the fire service.

These organic phosphates are marketed under many trade names and, in addition to their effectiveness, are extremely poisonous to humans. Without proper control, they result in serious illness and even death. Although these insecticides have a wide range in their degree of toxicity, the pharmacology, symptoms and treatment are the same for all members of the group.

As a fire problem, they will be found in storage as concentrates and commercial products in industrial and rural warehouses. In agricultural areas, they may be found in field use. The phosphates include, besides Parathion, TEPP, HETP, EPN, OMPA and Malathion. They are liquid in their pure form, but are usually packaged and sold in powder concentrate of 15 to 25 per cent strength. California law requires that only complete packages be used, to avoid spillage or evaporation from partially used containers. The state regulations also forbid the sale of amounts small enough for home garden use. The concentrate is mixed in the field with either dust or liquid, usually xylene, which has a flash point of 63 degrees Fahrenheit, and the mixture applied to crops in strength not exceeding two per cent.

These insecticides are readily absorbed through the skin, mouth and the mucous membranes of the eyes and nose. They are only slightly irritating upon contact, thus giving little immediate warning, but every precaution should be taken to protect fire department personnel who may come in contact with these chemicals. They affect humans the same way they do insects, by destroying the cholinesterase in the body, thereby impairing the nervous system. In extreme cases, death results. Poisoning may result from one heavy exposure or more often from frequent smaller exposures.

Symptoms of Exposure

Symptoms of such poisoning include headache, dizziness, nausea, diarrhea, increased saliva, tears and sweat. The pupils of the eye become smaller and vision is impaired. Muscles in the eyelids and tongue may twitch, followed by a general jerking of the muscles in the entire body. This overall muscular weakness may result in inability to breathe. Artificial respiration then becomes necessary.

Atropine is the prime antidote in such poisonings and chiefs should arrange to have it available for immediate use in fires involving quantities of these insecticides. If symptoms include pinpoint pupils or blurred vision, atropine should be taken immediately under a doctor's supervision. In cases where firemen have inhaled the poisonous fumes, personnel should be taken from the contaminated atmosphere and placed under continuous observation.

Temporary blindness sometimes occurs if the phosphates come in contact with the eyes. Treatment consists of flushing the eyes with water immediately after contact for at least 15 minutes. If these insecticides come in contact with the skin, the fireman's clothing should be removed and his skin scrubbed with soap and water for 15 minutes. Baths in alcohol also are beneficial. If taken internally, the fireman should be made to vomit by giving him warm salty or soapy water.

Precautions

Firemen approaching these chemicals under emergency conditions should avoid all contact with the bare skin. Rubber-covered protective clothing, cotton gloves and, if possible, goggles should be worn when handling them. Inhalation of vapors and the fumes should be avoided by use of a chemical cartridge respirator approved by the United States Bureau of Mines for toxic dusts and organic vapors. Or, self-contained breathing apparatus can be used. Firemen should also be cautioned against eating, drinking or smoking anywhere near the fire area.

In cases where spillage of these liquids occur, chiefs should cover them with an absorbent such as soda ash, lime, clay or sawdust. Sweep up the debris and bury it. Wash down the area with a strong lye solution. Empty drums should be washed with a 5 per cent lye solution, punched full of holes and discarded in a safe location. Empty bags or containers should be destroyed by burning or burying them as soon as possible. Spilled dusts can be picked up with a vacuum cleaner and the sweepings buried or burned in an isolated area. The floor should then be hosed down.

Create Other Fire Problems

These organic phosphates present several additional problems under fire conditions. High or sustained heat will break down the compounds and destroy them, rendering the insecticides harmless. Low heat—200 to 240 degrees—can break down the product to a point where a gas is formed. This gas is highly toxic and extreme care should be taken.

It is of especial significance to the fire service that these chemicals go through a transitional stage. Gases are given off *before* the heat rises to a point where it destroys the compound. There is no way to determine whether this point has been reached or passed during a fire. Therefore, chiefs should order the use of breathing apparatus and protective clothing.

Insecticides of the phosphate family will burn in the powder form by joining into a flammable gas. When diluted with a flammable solvent, they should be treated in the same manner as would any other such liquid, except extreme caution should be exercised to avoid contamination by fumes or the liquid. The 100 per cent concentrates are shipped in 16 gauge drums, rated to 125

lbs. hydrostatic pressure. Manufacturing chemists point out that the contents of a drum would have to reach 392 degrees Fahrenheit to produce this pressure. Water, therefore, should be applied when drums are subjected to high temperatures to prevent internal pressures and probably rupture.

Except for OMPA, these insecticides are not soluble in water, so the contents of drums and bags cannot be diluted by streams to a point where they would be harmless. Regardless of where the stuff is washed, the dried residue is dangerous and constitutes a decontamination problem. Probably the best control is a decontamination process using large quantities of 5 per cent, or greater, lye solution.

Safety Measures

Fire Prevention Bureaus might urge the following in minimizing the danger of fires and spills from these chemicals:

1. Limit the amount of storage, and protect the area from possible exposure to high temperatures. Isolated outside storage, or inside storage in sprinklered fire-resistive construction occupancies with proper drainage and ventilation to the outside atmosphere, is desirable.

2. Post adequate warning signs to indicate the location of these insecticides. Additional signs outlining emergency procedures and first aid measures in case of fire or spillage should be posted adjacent to the storage building or room.

3. Special cabinets or lockers containing all necessary emergency equipment should be conspicuously located near the storage area. Provide labeled containers of absorbent material, such as clay, soda ash, lime or sawdust.

4. Recommend that company personnel receive adequate training and education relative to the hazards, emergency procedures and first aid measures in respect to the storage and handling of toxic organic phosphates.

5. Provide at least two units of fire extinguishers outside and adjacent to the storage room. Carbon dioxide and dry chemical are preferable.

As Captain Leo K. Najarian of the Los Angeles Fire Department's industrial inspections detail summarizes in his report, "The danger of poisoning from the use of organic phosphates is serious, and supervisors, workers and firemen alike should be aware of the hazards. No single protective practice or device will suffice. All must be employed."

Story of the Fire

The fire involving the Parathion-loaded warehouse in Pomona made four firemen seriously ill and 55 other persons, including 35 firemen, received medical treatment.

First-in firemen found the long shed totally involved, and they concentrated their efforts upon protecting exposures, including a structure on the west, three large flammable liquid gravity tanks immediately adjacent on the east and a large wooden packinghouse on the north. This building had been ignited from radiant heat, although it was located across several lines of railroad tracks.

After the exposures were protected, the Pomona firemen, under Chief Root Crawford, tried to extinguish the Duggan warehouse blaze. He believed this step could be tried with a minimum of hazard to personnel because the building was completely ventilated and the lack of any wind permitted the smoke to rise straight into the sky. Several firemen wore gas masks during part of this time.

The first alarm was received at 11:15 P.M., and about 3 A.M., shortly after firemen returned to their stations, the first symptoms of Parathion poisoning were noticed, especially nausea, headache, tightness in the chest and coughing.

All 35 firemen on duty were treated with intravenous shots of atropine at the Pomona Valley Hospital. In all, 55 persons were given similar treatment, including five policemen and power and telephone crews that had responded to the fire.

The four most serious cases among firemen involved those who became ill at 7 A.M. One of them received seven shots of atropine at 15 minute intervals. He finally lost consciousness and was given oxygen. All four had been released from the hospital four days after the fire. When Los Angeles Fire Department fire prevention bureau experts interviewed one of these four, he was still coughing slightly, felt extremely nervous and was so weak that he needed help in descending the stairs. This, four days after the fire! And he had been wearing a gas mask, too.

Firemen, looking back upon the fire, said they believed the smoke or vapors knocked them out. They described the smell of the fumes as resembling the odor of garlic—and it could be detected even while wearing a filter-type mask. Curiously, not all of the men working at the fire became ill. Some did not even show symptoms of poisoning. All firemen, however, were stripped of clothing at the hospital and given alcohol baths—Parathion being soluble in alcohol.

A large quantity of the chemical was carried away from the fire by the hose streams. The area was covered with lime, which reacted to neutralize the chemical, although not as fast as a 5 per cent caustic solution would have done it.

Captain Donald G. Wilson of the Los Angeles Fire Department commented in his report:

"The Pomona Department and Chief Crawford are to be commended for having checked this building previous to the fire and determining that Parathion was stored there. It is regrettable that storage was found in other locations than those discovered at the time of the inspection. They took a calculated risk and probably would have had no trouble had the storage been confined to the one location. As it was, they knew what caused the symptoms and prompt remedial measures were taken by the hospital staff."

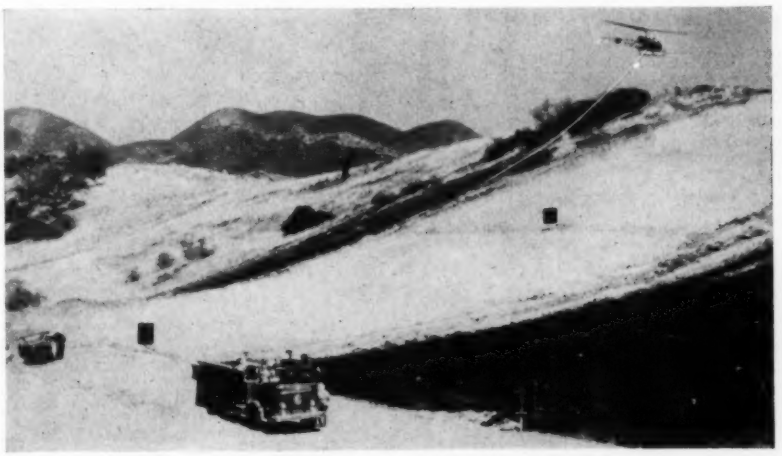
The owner of the plant at 245 Santa Fe Avenue. North Pomona, estimated damage would be in excess of $250,000. He said the chemical was used in spraying trees in area citrus groves. Apparatus from nearby La Verne, Claremont and Chino occupied Pomona stations in line with mutual aid.

A California division of industrial safety report showed that one ounce of this Parathion could kill 2400 persons if properly spread. These safety experts theorized that there was enough of the chemical at the Pomona fire to kill every citizen of California. They also learned that telephone linemen and railroad right of way workers as well as Pomona hospital patients developed symptoms of Parathion poisoning days following the fire.

Monroe County Appointments

Monroe County, N. Y. supervisors have created the post of County Fire Coordinator, and established a Fire Advisory Board.

Rochester Deputy Fire Chief Ambrose E. Foos was named Coordinator. He will direct area mutual aid and firemen's training.



Here's the latest in stretching hose lines.

Of the innovations employed in the study of methods of controlling widespread fires, possibly the most interesting is the use of helicopters for laying hose lines. This evolution is one of many being carried out under "Operation Firestop," a year-long operational study designed to explore certain aspects of large area fires and their control. This program is under the joint sponsorship of the Los Angeles County Fire Department, the Los Angeles Fire Department, U. S. Forest Service, Federal Civil Defense Administration and other agencies. The work is carried out largely at the Camp Pendleton Marine Corps base in California. The illustration shows a helicopter laying a line of hose up a steep incline.

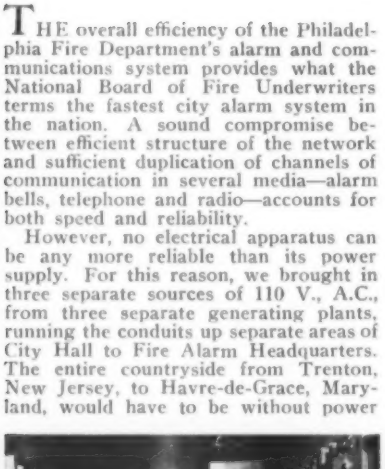
SELENIUM RECTIFIERS USED IN PHILADELPHIA ALARM SYSTEM

Three Sources of Electric Power Insure Uninterrupted Operation

By Frank Schierff
Supt. of Communications Systems

THE overall efficiency of the Philadelphia Fire Department's alarm and communications system provides what the National Board of Fire Underwriters terms the fastest city alarm system in the nation. A sound compromise between efficient structure of the network and sufficient duplication of channels of communication in several media—alarm bells, telephone and radio—accounts for both speed and reliability.

However, no electrical apparatus can be any more reliable than its power supply. For this reason, we brought in three separate sources of 110 V., A.C., from three separate generating plants, running the conduits up separate areas of City Hall to Fire Alarm Headquarters. The entire countryside from Trenton, New Jersey, to Havre-de-Grace, Maryland, would have to be without power before our alarm system would become inoperative! We have, for the past five years, put our trust in selenium rectifier equipments manufactured by the Federal Telephone and Radio Company, a division of the International Telephone and Telegraph Corporation, as the sources of current for our basic alarm-box-to-central-office and central-office-to-firehouse bell circuits. These static devices replace the traditional dynamotor sets.



Power room. All but a few of the 160 selenium rectifiers are visible. They are mounted on old dynamotor racks with little modification save for drilling new holes.

A total of 2800 Philadelphia fire alarm boxes and 100-odd equipment stations—including pumpers, ladders, rescue squad trucks and fireboats—are divided among 128 circuits, each supplied by one FTR full-wave filtered unit. Nine stand-by supplies are kept turned on, and may be conveniently patched into any circuit at the control console, at will, in the event of trouble. I might point out that, after five years, not a single failure has been experienced despite unbroken continuous service.

Every piece of alarm apparatus in each circuit is wired in series for supervisory purposes. Since the selenium rectifiers yield three outputs (selected by taps) of 220, 160 and 110 V., D.C., at .100 ampere, we can match the supply to the particular load. Each unit is equipped with a 1000-ohm, 50-watt potentiometer, the control knob being visible at the top left of each box in the photographs. By selecting the proper tap and adjusting the potentiometer, the desired current of 100 milliamperes is easily obtained, and serves as a basis for supervision. If, in the course of routine circuit-testing, an abnormally high or low current is noted, the presence of high-resistance opens, shorts, or grounds is betrayed immediately.

One of the illustrations herewith shows an operator patching a stand-by supply into a circuit for test purposes. The large meters, and the 1000-ohm stand-by circuit potentiometers, whose knobs and escutcheons are visible in banks of four at the bottom of each terminal panel, enable him to adjust the stand-by supply to the circuit being observed. Since we re-used the old dynamotor racks to mount the selenium rectifiers, and power room is cramped, the test/stand-by patching at the console is a great convenience.

Maintenance is virtually nil. When dynamotors were used, a maintenance man had to ride constant herd on the equipment, carrying out lubrication schedules, and pulling units for rebuilding or replacement.

Since there are of course no moving parts in the selenium rectifiers, maintenance is now limited to an occasional checking of pilot bulbs. Substitution of 220-volt bulbs in the 100-volt circuit has measurably prolonged the replacement interval.

A second major benefit is that we are no longer bothered by commutator hash. Alarm circuits run in the same cable sheaths as do voice circuits, and the inevitable hash caused interference, despite filtering, as units aged in service, and brushes and commutators wore.

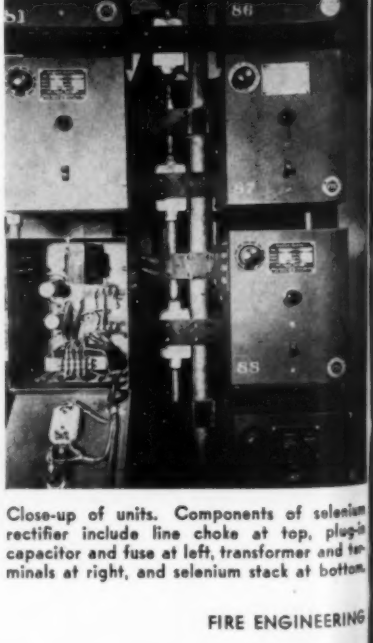
We have tried to make each link in our communication chain as strong as possible, and the selenium rectifiers certainly rank at the top of the list in terms of reliability.

Patching in a selenium rectifier supply to test alarm circuit by measuring current. Two-way meters avoid polarity problems in patch wiring.

New York Perfects Mutual Aid

New York is the first state to complete a comprehensive Statewide mobilization and mutual aid plan. Following a five-year study of the subject, the State's Bureau of Fire, Division of Safety has prepared a "Guide to Fire Mobilization and Mutual Aid Plans for the State of New York" which it is expected will be adopted by the 62 counties in the state.

At present, this publication is not available for general distribution.



Close-up of units. Components of selenium rectifier include line choke at top, plug-in capacitor and fuse at left, transformer and terminals at right, and selenium stack at bottom.

FIRES IN METALWORKING PLANTS INCREASING IN FREQUENCY

Seventeen-Fold Increase in Twelve Years; Many Contributing Factors

IN RECENT years the metalworking industries have been beset by fire. Since 1942 large-loss fires in both heavy and light metalworking plants have increased 17 times. The increase is due in part to higher concentration of values in buildings, equipment and products exposed to fires and to hazardous new auxiliary processes and mixed occupancies.

These facts are brought out in a 57-page survey on fire hazards and safeguards for metalworking industries issued recently by the National Board of Fire Underwriters, New York.

According to the National Board of Fire Underwriters, there were about 175 large-loss fires — those that result in damage of $250,000 or more—in the metalworking industries between 1942 and 1953, with an aggregate loss of approximately $150,000,000 as contrasted with the period from 1931 to 1942, when only 18 large-loss fires were reported with aggregate losses of $8,500,000.

"This seventeen-fold increase in losses in this category of fires presents a serious problem to this industry," the National Board declares.

The survey was made by the research division of the National Board's Committee on Fire Prevention and Engineering Standards. It was directed by John A. Neale, NBFU's chief engineer, and Mathew M. Braidech, research director.

The survey shows that several new factors have entered the fire safety picture in recent years, but what is more important, is the presence of old fire causes in a more pronounced form.

Excessively large, unprotected areas are used in a considerable portion of metalworking production. A good number of metalworking plants are utilizing woodwork and plastic materials in their fabrication processes, and are thus creating other industries within their own industry. Flammable liquid fires continue to predominate in this industry as more of these fluids are being used than ever before.

Automatic sprinklers are not too common in many phases of this industry, for example: 26 out of 27 large-loss metalworking fires which occurred in 1951 were in unsprinklered plants. Insufficient fire extinguishing facilities due to lack of water supplies and ineffective fire-fighting units in some of the smaller communities have been responsible for the uncontrolled spread of fire. Fires have also gained considerable headway because of delayed detection and neglect in promptly calling the fire department. Maintenance fires caused by carelessly used welding torches or involving sawdust used for the removal of oil from operating floor areas in machine shops continue to prevail in the industry. Metal dust explosions have caused some of the most severe losses of life. In recent years hydraulic fluid fires, molten salt baths, and quench tank fires as well as electroplating and electropolishing have presented troublesome control problems.

Newer processes and operational techniques are rapidly entering the already complex production in these diversified industries, and are requiring more careful analysis of the associated fire hazards.

Inspections

Metalworking plants, in general, require well organized programs of inspection, maintenance, housekeeping, and waste disposal to achieve satisfactory operating efficiency and safety, the National Board survey said. In order to prevent fires, it is necessary to recognize, in advance, the inherent hazards and determine the possible contributory causes in any manufacturing process. A good inspection program will often reveal such hazardous conditions in time so that they can be promptly corrected by proper fire preventive and protective measures. The frequency of these inspections will depend on the type of plant, working conditions, and the individual plant characteristics. Many plants have developed comprehensive and regularly scheduled inspection programs that are closely co-ordinated with safety and fire prevention operations. Cooperation wtih fire authorities and insurance inspectors will provide effective guidance in fire safety and will also serve as an additional check on the efficiency of the plant inspection procedure.

Typical Program

A typical plant inspection program should cover the following items: (a) general housekeeping, (b) materials handling and storage, (c) plant layout, (d) heating equipment, (e) dusts, fumes, gases, and vapor removal, (f) machine and safety controls, (g) general maintenance, (h) electrical equipment and lighting, (i) process equipment, (j)

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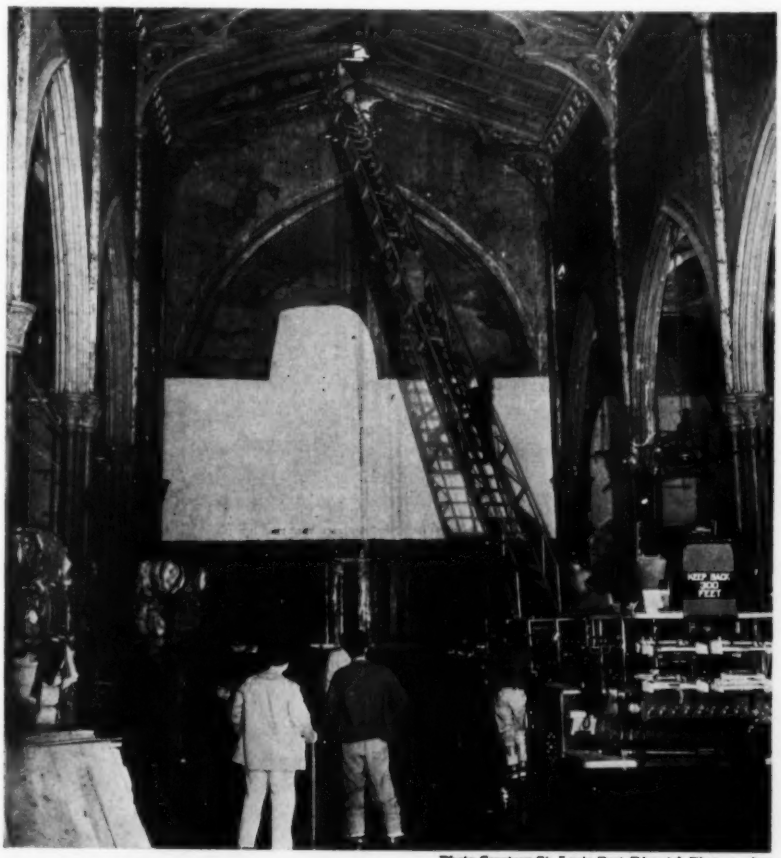


Photo Courtesy St. Louis Post-Dispatch Photographer

Aerial Ladder Does Good "Inside Job"

Firemen of Ladder 13, St. Louis Fire Department, did an inside job with their aerial ladder early May 18, 1954, when they extinguished a fire in the old St. Lawrence O'Toole Catholic Church structure at 1233 North Fourteenth street.

Fire broke out in the roof of the building, now used for storage by the General Waste Material Co. Firemen, unable to get at the fire from the outside, drove their ladder truck right into the building and quickly extinguished the flames before they could spread throughout the old wooden roof. This is a rather unusual use of an aerial ladder but in this instance it was apparently sound judgment. Usually a church building fire winds up a total loss, but the prompt, effective use of this modern aerial ladder the fire was quickly reached and extinguished.

IT'S CANADA'S YEAR!
ON TO HOUSTON FOR THE INSTALLATION OF —OUR— FIRST CANADIAN PRESIDENT IN 26 YEARS
HOUSTON! CANADA— ROARS IN '54'

Left: Boosting for a big Canadian attendance at the Houston conference of the I.A.F.C. Left to right: James L. Arnott, a Director of the Canadian Association and General Chairman of the 80th I.A.F.C. Convention in Toronto last year; Chief Beverly Wade, Kentville, Nova Scotia, new President of the Canadian Association of Fire Chiefs; Chief C. Gray Burnett, and Ontario Fire Marshal W. J. Scott, O.B.E., Q.C., Director of the I.A.F.C. Right: Canadian Fire Chiefs accept new hotel fire safety card: Left to right are Chief Tom Paveling, East York, Ont.; Chief Hugh S. Bird, Vancouver, B. C.; Chief Beverly Wade, Kentville, N. S.; John Boyle, Hotel Association President; Saskatchewan Fire Commissioner Ross Switzer, Regina; and Ontario Fire Marshal W. J. Scott. The group is shown with enlarged art sketch of the card. The English edition is 4 x 7 inches. The bilingual card is 8 x 7 inches, with both French and English on the same facing.

Canadian Chiefs Boost I.A.F.C. Conference

The Canadian Association of Fire Chiefs held its annual conference at Saskatoon, Sask., on August 16-19. Officers selected for the ensuing year are: President, Chief Beverly Wade, Kentville, N. S.; First Vice-President, Chief Thomas Paveling, East York Township, Ontario; Second Vice-President Chief Hugh Bird, Vancouver, B. C.; Secretary-Treasurer, Chief Alan Clark, Lakefield, Ont.; Past President, Chief Francois Premont, Arvida, Que. Directors include: Chief W. H. Short, Lethbridge, Alta.; Chief Thomas Lennon, Saskatoon, Sask.; Chief David Clawson, Winnipeg, Man.; Chief Kenneth Putnam, Kitchener, Ont.; Chief Jean Brunet, Grand Mere, Que.; Chief M. H. McKie, Moncton, N. B.; Chief A. J. Stratton, Steel Company of Canada, Hamilton, Ont.; Lt. Col. E. Desjardins, Fire Marshal, Canadian Army, Ottawa, Ont., and James L. Arnott, Wilson & Cousins, Ltd., Toronto, Ont. The Director to the International Association of Fire Chiefs is Fire Marshal W. J. Scott of Toronto, Ont., and the Sergeant-at-Arms, Chief Walter Scott, Galt, Ont.

Plans were laid for stimulating a strong attendance at the conference of the International Association of Fire Chiefs at Houston, Tex., on October 18-21, 1954. At that conference, Chief C. Gray Burnett, of Ottawa, Ont., is slated to be advanced to the Presidency. If the Association follows precedent and elects Chief Burnett, he will be the first Canadian President of the organization in 26 years.

In cooperation with the Imperial Tobacco Company of Canada, Ltd., the Hotel Association of Canada is distributing to its member hotels, through the provincial hotel associations, an attractive three-colored card drawing attention to the dangers of smoking in bed in hotel rooms. Announcement of the program was made by John Boyle, of Regina, President of the Hotel Association of Canada, addressing the convention.

"All right! Who smoked in bed?"

During the conference of the Canadian Association of Fire Chiefs held at Saskatoon, Sask., August 16-19, the matter of checking fires caused by smoking in bed was discussed. Inspired by the discussion, Ed. Sebestyen, cartoonist for the "Saskatoon Star-Phoenix," the local daily newspaper, came up with the cartoon above.

July Fire Losses

Estimated fire losses in the United States during July amounted to $69,532,000, it was reported by the National Board of Fire Underwriters.

According to Lewis A. Vincent, NBFU's general manager, this $69,532,000 loss represents a decrease of 7.2 per cent from losses of $74,938,000 reported for July, 1953, and an increase of 6.1 per cent over losses of $65,533,000 for June, 1954.

Losses for the first seven months of 1954 now total $525,522,000 an increase of 3.7 per cent over the first seven months of 1953, when they amounted to $507,019,000.

These estimated insured losses include an allowance for uninsured and unreported losses.

Ladder Too Short—Copter Used

In St. Johns, N. B., a chimney sweep was picked off by helicopter from a perilous perch atop a 150-ft. smokestack on Aug. 14, after being stranded for five hours.

As F. J. Esson of Toronto went up the stack, the lower part of the ladder he was climbing gave way. He made his way to the top but was unable to get down the soot-lined chimney.

Firemen who were called were helpless because their longest ladder was 80 feet too short, and so authorities sent to the Royal Canadian Air Force for help. It arrived in the form of an Air-Force copter. A rescue line was dropped to Esson and he was pulled to safety.

Essen had spent the waiting time working cheerfully at his job of chimney sweeping—as far as he could go.

N.B.F.U. Issues Booklet on Nursing Homes

The National Board of Fire Underwriters has issued a new edition of its "Suggested Ordinance on Nursing, Convalescent and Old Age Homes," bringing up-to-date the suggested ordinance first published by the Board in 1945.

It is recommended for adoption by municipalities and may also be used as a basis for state or county regulations.

Within the last 10 years, four of the more tragic fires in nursing and old age homes took the lives of 88 persons. The loss of life in those and many other fires in similar homes resulted from several causes, the Board points out, the most important being the use of highly combustible fibreboard on interior walls and ceilings, unenclosed stairs and dumbwaiters, lack of sufficient exits, inadequate fire separation for parts of buildings containing special fire hazards, and lack of automatic sprinkler protection.

Although the 1945 suggested ordinance has been adopted in a number of places and some states have regulations providing for fire safety in nursing convalescent and old age homes, serious fires have continued to occur, indicating the need for more widespread regulation from the standpoint of fire safety.

Some nursing, convalescent and old age homes have modern buildings of fire-resistive construction, but a great many existing homes are in buildings of combustible construction, many of them originally private dwellings. The common availability of such large, old mansion-type residences forms a strong inducement to the conversion of them to such use.

The booklet may be had by addressing the National Board of Fire Unterwriters, 85 John street, New York 38, N. Y.

Boardwalk Blaze Threatens Atlantic City

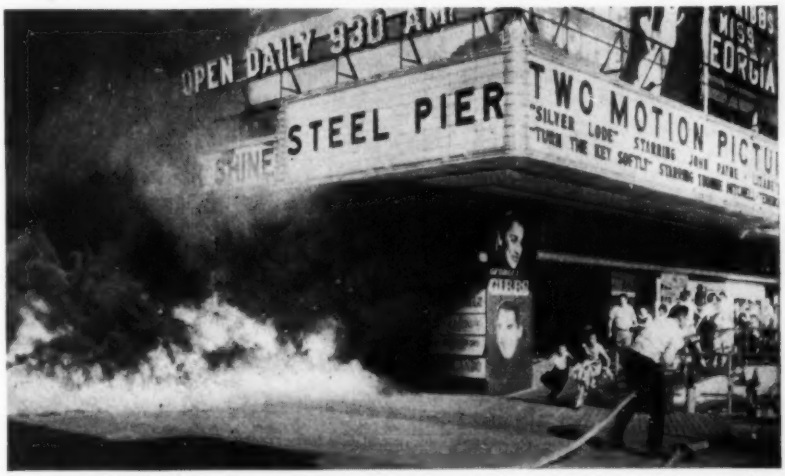
Fire, starting from an undetermined cause under the famous Boardwalk (believed to be a cigarette) raced through a half-block-long area along the Atlantic City beachfront on July 30, 1954, badly damaging the Steel Pier and four stores.

A patrolman discovered the fire as he passed through the 1100 block in front of the Planters Peanut Store and called in a local alarm at 5:45 P.M. He attempted, unsuccessfully, to fight the fire with an extinguisher, aided by a lifeguard from the beach, but the fire erupted through the wooden walk and quickly involved the stores.

A general alarm was sounded at 5:57 P.M. by Fire Chief Zenis Mathis, bringing out 21 pieces of apparatus—practically the entire city's fire force, calling in off-shift men and the Absecon and Ventnor fire companies to cover-up.

Almost before water was on the fire it had spread to stores occupied by Howard Johnson Restaurant, Planters Peanut Store and the Fralinger Salt Water Taffy Store. Fanned by a 15-M.P.H. breeze, the flames worked east along the 50-foot wide "Wooden Way" which was

Atlantic City fire fighters prepare to make a stand against advancing Boardwalk fire. Fire travels rapidly beneath the planking.



Patrons of Steel Pier, Atlantic City, N. J., stampede to safety from fast-approaching Boardwalk fire.

Right: Apparatus uses Boardwalk to approach fire. Because of rapid travel of flames, operations must be carried on speedily. Apparatus is kept ready to beat a hasty retreat. Entrance to Steel Pier shown at right.

erected only 18 months ago. The famed Steel Pier, which houses a General Motors exhibit, two movie houses, a large ballroom, and grandstand for aquatic events and many novelty booths, was seriously threatened. The marquee which was put up last year, was ignited and badly damaged, together with a costly G. M. Cadillac display. A sprinkler water-curtain was of great assistance in preventing the flames from extending the length of the half-mile-long pier.

More than 500 persons, mostly children, watching a movie show at the Ocean Theatre at the front end of the pier, were evacuated in orderly fashion, while another 5,000 attending shows and exhibit areas at the ocean end of the pier remained where they were or were led to the beach through side exits.

Fire fighters operated 12 hose lines, hooked to the Boardwalk high-pressure system, on the blaze and had it under control within an hour. They were assisted by lifeguards, auxiliary police and others.

Aiding Fire Chief Zenus Mathis in directing operations were Deputy Chief Joseph Berenato and William Bierley, and Battalion Chiefs Edward Jordan and Warren Conover. An interested observer was former Fire Chief Rex Farley.

Property loss reportedly will reach $500,000.

Flames boil up through cracks between planks in Boardwalk as fire fighters hustle to get line in operation. Note abandoned fire extinguishers to the left of crew. Steel Pier entrance at right.

Hudson Falls Force Controls Threatening Fire

A threatening fire on the night of June 30, last, gave fire fighters of Hudson Falls, N. Y., plenty of action for a time.

The blaze did extensive damage to a residence and a florist shop and severely damaged the connecting workshops, garage of florist shop and greenhouses.

The actual fire loss was in excess of $10,000, but only the hard work of the firemen, most of them volunteers, held the blaze from spreading to closely built-up frame structures in the area.

The fire was first noticed by the owner of the property, traveling along the rafters of the workshop which houses the florist cooler.

An immediate call was placed for the local firemen but in some way signals got crossed up and the call went to a fire department in the adjacent city of Glens Falls. The mixup was finally straightened out and the Hudson Falls department swung into action.

Despite the delay in transmitting the alarm to the right fire forces, which permitted the fire to gain headway, the local firemen did what observers call a remarkable job of controlling the fire, in the face of the numerous combustible exposures.

Highlight of the operation was the wrestling match between fire fighters on a beam ladder, and a thrashing hose, which got away from a crew on the ladder. Fortunately, nobody was injured by the snakelike line, although many persons, including the hapless photographer who snapped the accompanying shot, got their Saturday night bath on Wednesday. The hose was finally captured when the ladder hook on the playpipe neatly embedded itself in the hip pocket of Fireman Harold "Howdy" Quinlan. Luck sometimes is with the blazebeaters!

Acknowledgement: The editors acknowledge with thanks the cooperation of Karl R. Rissland, Forest Ranger of Washington County, New York, who supplied data and pictures upon which this account is based.

Members of the Hudson Falls Fire Department bring 2½-inch hose line into play to quell blaze at florist shop and greenhouse.

Radio Network Will Serve Buffalo and Erie County

Work has begun on a $420,000 FM radio system interconnecting the City of Buffalo with 92 urban fire stations in surrounding Erie County, N. Y.

Contracts have been awarded to Motorola Communications & Electronics, Inc.. for a turnkey installation of the county-wide fire system, to be completed by the spring of 1955.

Ten 60-watt area base stations will co-ordinate the mutual aid firefighting of the 92 outlying stations, each of which will have a monitor receiver equipped for selective signalling, and two-frequency transmitters on fire vehicles.

The ten area stations and the City of Buffalo will intercommunicate by means of an unattended, fully automatic relay station located in Chestnut Ridge Park, about 14 miles southeast of Buffalo.

A five-channel microwave system, complete with telemetering facilities to indicate condition of the remote equipment, will connect the Chestnut Ridge station with a similar microwave terminal atop Buffalo's City Hall.

First phase of the contracts calls for modernizing Buffalo's fire radio network for two-frequency operation and extending the city system to include neighboring Lackawanna.

At fire headquarters in downtown Buffalo, civilian defense and public safety officials can chart the availability of fire units throughout Erie County by means of an intricate master control console. Because of this alerting feature, the radio system will double as a civil defense warning network, and about half the cost is being borne by matching funds of the Federal Civil Defense Administration.

Low Pressure Handicaps Volunteers Fighting School Fire

Fire, starting from an undetermined cause, on July 31, 1954, practically destroyed the 14-room, three-story Mount Joy Elementary School building, Mount Joy, Pa., notwithstanding the cooperative efforts of volunteer firemen from a wide area.

It was again the old story of the factors contributing to the fire's spread outweighing those contributing to its extinguishment. As it was, the volunteers won their main objective, to prevent extension of the blaze to the tinder-dry frame dwellings which completely surrounded the old school, located in the center of Mount Joy.

The fire was discovered about 7:45 A.M., and the alarm turned in by Richard Dwillinger, a fire fighter, who was en route to his place of work. At almost the same instant Martin Reese, who lives at the rear of the building, summoned the Florin Fire Company, located less than a mile away.

At the time of the fire the Mount Joy area was suffering one of its worst dry spells and only the night before the fire warnings were issued by the water authorities urging citizens to conserve water.

Fire Chief Ray Meyers, who responded with the initial companies, called for additional help as soon as he was aware of the seriousness of the fire. Realizing, also, the problem of getting sufficient water on the blaze, he issued orders for a relay to be set up to Little Chicques Creek, located about a mile away.

When the Friendship Fire Company of Mount Joy arrived at the scene, the fire appeared to be confined to the southern corner of the building, and centered on the ground and first floors, but in the few minutes it took for firemen to hook up, the fire advanced to the second floor and swept north towards the front of the building.

It was at this stage that Chief Meyers summoned help from neighboring towns of Salunga (five miles) and Rheens (five miles) using the newly-installed civil defense two way radios.

This call was soon followed by others for additional fire fighters to operate the relay. These came from Landisville (8 miles); Elizabethtown (7 miles); Marietta (5 miles), and Manheim (6 miles).

Here again radio played a prominent part in the struggle. It was helpful in directing these, and other companies to the exact location at which they were most needed. And it was of great value in helping maintain a steady pressure in the relay line.

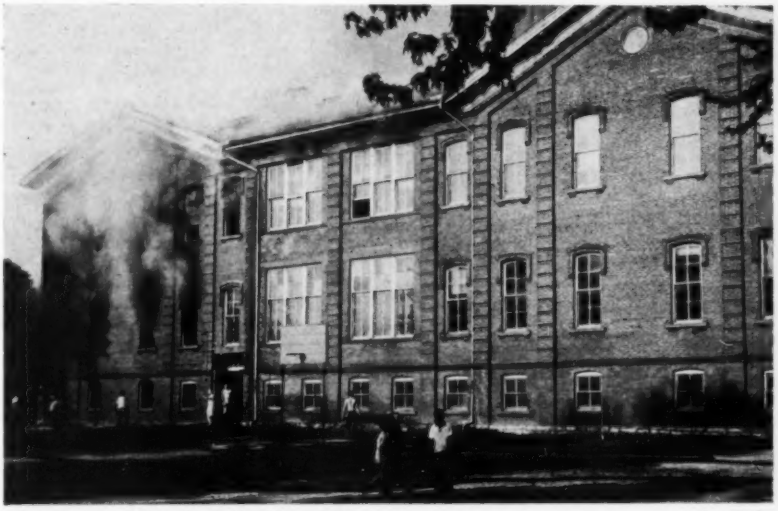
Fire police were also of much assistance. They rerouted traffic on U.S. 230 (Main Street), to allow the hose to be laid to the Creek, and kept the thoroughfares open for movement of fire forces.

Firemen were soon forced to fight the fire practically from the outside. It was 10:30 A.M., and the damage was practically complete, before firemen were able to enter the structure. At about that time, Chief Myers ordered all lines from the borough fire hydrants shut down, in view of the water shortage, and efforts were made to complete the operation using only the lines from the relay.

A total of six 1½-in. lines and five 2-½in. lines were used to fight the blaze. Thirteen engines and approximately 200 firemen were in the engagement. Fortunately, although it was a hot day and many men worked without protective clothing, no firemen were injured.

The last hose was not picked up until after 6 P.M. At about 8:30 P.M. the Mount Joy Company was again called back to the scene when wind fanned some embers into fire. At 1:30 A.M., on August 1, the same unit was called out again and this time the volunteers elected to stay on the spot until morning to keep vigil over the hot embers. They returned to quarters at 6:00 A.M.

Many residents, if not the school chil-



When firemen first arrived, the blaze did not seem serious as it was in one part only of the 14-room brick structure.

A minute or so after this picture was taken, flames swept through the second floor all the way to the front of building.

The Bell Tower in flames. Seconds later the huge bell crashed through to the second floor.

dren, mourned the destruction of the old bell tower and bell. The latter fell to the second floor when the tower burned and, when fire rekindled in the evening, the bell dropped through to the first floor. The heat caused it to lose its original shape, although it remained in one piece.

Acknowledgement: The editors are grateful to Marshall A. Dussinger, Chief Hook and Ladderman, Friendship Fire No. 1, Mount Joy, for data and pictures upon which this report is based.

Strictly for the Birds

Fire Chief Harry R. Krieger of Springfield, Ore., whose fire department goes in strongly for home inspections, recently ran across a novel "violation"—strictly for the birds.

One of Fire Marshal Rex McCready's inspectors took a gander at an outside electrical switch and fuse box alongside a dwelling, to find to his surprise that it had become the squatting place of a husky bird which had built a husky nest right in the box.

The novel fire hazard came about when the bird found an opening in the top of the switch box where a knock-out plug had been removed and not replaced.

Chief Krieger had the box removed and brought to the fire station where it was put on "display."

THANKS JAY STEVENS

New Jersey School in October

An expanded program of outdoor training in fire fighting to meet the needs of fire forces throughout New Jersey will be conducted by the New Jersey State Fire College at the National Guard Training Center, Sea Girt, N. J., on October 22-23-24, it is announced by John P. Weeks, Deputy Chief of the Newark Fire Department, president of the College, which is a division of the New Jersey State Safety Council.

The weekend sessions will be open to paid and volunteer firemen and members of plant brigades in New Jersey.

The program is the first to be held since 1952; it will include outdoor training on all phases of fire fighting and fire protection as well as in the use and maintenance of modern fire fighting equipment. During the weekend training period, eight sessions will be conducted by experts in the field of fire fighting. Reservations may be made at the New Jersey State Fire College, 24 Branford Place, Newark, N. J. Registration will start at 6:00 P. M. on Friday, Oct. 22, at Sea Girt; all registrants will be billeted at the Training Center until the conclusion of the program at noon the following Sunday.

Radio and Mutual Aid Team Up at Big Fire

For the first time in the memory of Charlotte, N. C., fire fighters, a major blaze was discovered and reported by the Fire Chief himself.

The fire in question, on June 24, 1954, was the second major blaze in that city within three weeks, and wrecked the vast one-story brick freight station of the Southern Railroad in mid-town Charlotte, with property loss estimated at above $500,000.

Fire Chief Donald S. Charles was driving back to headquarters, following a mid-town business meeting. In the car with him, was former assistant chief J. H. Bailey of Ashville. Just as they reached the station, Bailey spotted a cloud of smoke and asked "What is that up there?"

Chief Charles took one look and grabbed his radio hand set to sound the first alarm. Then he took off for the scene of the fire which proved to be the freight building which stretched from Second to Fourth streets between College and Brevard.

Before the chief reached the scene, he had radioed a second and a third alarm. Meanwhile at City Hall, City Manager Henry Yancey was told of the fire. One look out the windows and he picked up a telephone and asked the Gastonia, Concord, and Monroe Fire Departments for assistance. He had police cars dispatched to act as escorts for the assisting forces.

The blaze, which threatened nearby warehouses, office buildings and a lumber plant, started from an unknown source and roared unchecked through the huge building, nearly trapping some occupants. Investigation by the fire department indicated the most probable cause was chemicals stored in the building. These may have become ignited by the extreme heat of the day and "let go" with explosive force, sending the fire from one end of the building, which contained 93,000 sq. ft. of floor space) to the other.

Railroad officials estimated that 23 freight cars and vast stores of goods from foodstuffs to camera film were destroyed. The heat built up by the fire raised the temperatures at exposed buildings to over 110 deg. The thermometer, on College street nearby stood at an equatorial 120 degrees. Neighboring buildings were too hot to touch and firemen devoted their immediate attention to preventing ignition of these exposures.

In addition to the entire force of Charlotte fire fighters called to battle the blaze, volunteers came from 11 other Mecklenburg County communities. These units were: Derita, Long Creek, Mint Hill, Oakhurst, Hickory Grove, Newell, Mallard Creek, Pinoca, Cook's Community, Woodlawn and Wilkinson Boulevard.

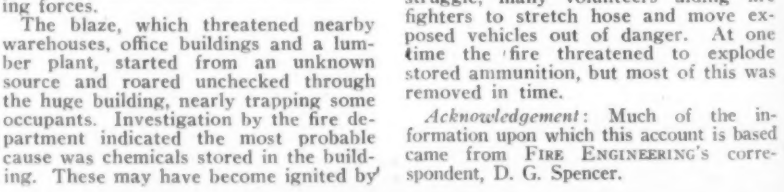
Men from Gastonia, Concord, Wilkinson Boulevard, Pinoca and Woodlawn joined Charlotte firemen at the scene. Those from other departments "located" in Charlotte fire stations to cover the city.

Charlotte firemen alone reportedly stretched over 15,000 feet of hose and brought a score or more heavy streams to bear upon the flaming building, and endangered exposures. The high peak of the struggle was the effort to prevent ignition of the Central Lumber Company whose large stock of finished lumber lay just east of the burning building.

The first alarm was logged at 4:10 P.M. and the peak came at about 4:30, when the roof was in and the flames uncontrolled. It was about 6:00 P.M. before fire fighters were allowed inside the ruins to overhaul.

Hugh crowds of spectators watched the struggle, many volunteers aiding fire fighters to stretch hose and move exposed vehicles out of danger. At one time the fire threatened to explode stored ammunition, but most of this was removed in time.

Acknowledgement: Much of the information upon which this account is based came from FIRE ENGINEERING's correspondent, D. G. Spencer.



Southern Railway freight sheds when fire was at its height.

Radio Expansion Urged in Chicago

Fire Commissioner Michael J. Corrigan was studying a report urging expansion of the Chicago Fire Department's radio system to provide two-way communication in all apparatus.

The report was prepared by the Armour Research Foundation. It emphasized that the present limited network, consisting of three fixed single channel base stations and 30 mobile units is "inadequate for Chicago." The department has more than 300 pieces of equipment.

The Armour experts recommended:

1. Installation of two-channel operation to handle the increased message volume. One channel would service engine and truck companies, division marshals and battalion chiefs. The second would be used by ambulances, rescue squads, fireboats and maintenance vehicles.

2. Relocation of the north side transmitting station from 2322 Foster Ave., to near Milwaukee and Belmont Avenues and of the west side station from 5950 Madison St. to near 26th St. and Kedzie Ave. The south side transmitter at 6361 Wentworth Ave., was called satisfactory. The report also urged that the City Hall fire alarm office be moved to the present location of the north side transmitter.

3. Microwave radio links should supplement all wire lines connecting base station locations. "It is apparent that any communication system largely dependent upon land line communications is vulnerable to bombing attacks," the report said. Point to point contact can be maintained with microwave links without interconnecting wires.

4. Installation of separate transmitters at base station sites for radio liaison between civil defense headquarters and the city's two fire alarm offices.

The fire department radio frequencies are in the 152-162 megacycle public safety band.

PAUL C. DITZEL

Persistency Builds Pioneer Lake County Radio System

An example of cooperative action in the public interest is provided by several communities in Lake County, Illinois, that have joined in a countrywide radio network to facilitate police and fire communication.

Police stations in a dozen towns of the area and many volunteer fire departments are linked to a master transmitter and receiver located near Libertyville, Ill. Selective coded controls enable the station to eliminate all towns not concerned with specific messages and to include those that are.

Hub of the unique network is a modern, one-story building housing the equipment which was jointly designed and engineered by Harry Quandt, World War I navy radioman who is in charge of the system. In fact, Quandt and two companions financed its building and a few years later, realizing its value, the county appropriated money for its extension.

Anticipating what might happen to his communications system, if the system broke down in event of serious fire, flood or other act of nature, Quandt installed stand-by power in the form of a 10 KW Kohler electric plant. Gas-powered, the plant goes into action automatically if central station power should fail.

When Quandt and his colleagues started this project back in 1935, a 50-watt transmitter was all the Libertyville station could boast. It wasn't powerful enough to serve the many other towns in the area that could benefit from such a system. But Quandt rode his traffic motorcycle by night, in pursuance of his duties, and devoted his days to study of police communications in nearby Chicago.

After several communities had voted to join the network, one barrier still remained. No such inter-city cooperation was permitted by Illinois statutes. So the state legislature at Quandt's urging, changed the law. The Federal Communications System insisted on ultra-high frequency right after World War II and the station was moved from Waukegan to Libertyville, which is in the center of the county—a better location for broadcasting. All participating towns now pay a service and maintenance charge and consider the costs quite reasonable when set against the many benefits their fire and police activities derive from a modern communications system.

When Quandt is out working on an emergency, the communications system is manned by his wife. Between them during 1953 they handled more than 75,000 radio calls that embraced police, fire, rescue and ambulance services in the 540 square miles of Lake County.

Numerous Lake County, Ill., police and fire stations are linked together by this radio center and communications system that handled more than 75,000 calls during 1953.

A pioneer in police radio work is Harry Quandt of Libertyville, Ill., shown sitting at the control panel of the equipment he designed, engineered and helped to finance. With him is Mrs. Quandt, who runs the equipment when he is on outside duty.

C.D. Conference Held in Portland

A regional conference for senior fire officers was held in Portland, Oregon on Thursday and Friday, April 22 and 23, in the auditorium of the central fire station. The conference, first of its kind in the nation, was under the direction of Jack Lowe, Director of Portland Disaster Relief and Civil Defense.

The conference was attended by representatives from the eight Western States, Hawaii, Alaska and two provinces of Canada. Some of the men who participated in the conference were Kyle Laughlin, Federal Civil Defense Administration; Horatio Bond, Chief Engineer, N.F.P.A.; Col. William Brewer, Director of Tactical Operations, F.C.D.A.; Jesse McLendon, Chief of Fire Services Region 7, F.C.D.A.; Col. Henry S. Eaton, Director F.C.D.A. Region 7 and others. From these men and from the panel discussions came the solutions to many problems that are unique to potential "Fire Storm Ridden Cities" and also problems of natural conflagrations.

Speaking of the conference, Jack Lowe said: "Fire services are engaged in Civil Defense every day of the year. The principal differences in wartime are:

"1. Their activities would be enlarged and with the increased demand on their facilities, they need to be augmented by trained auxiliaries who have equipment at their disposal.

"2. The work during wartime would necessitate close cooperation and coordination with other Civil Defense agencies, and

"3. There would be a lot of reliance on action taken by the public because of limited fire fighting facilities."

Each city is faced with different conditions. Lowe stated that an urban analysis should be made of each large city to determine such things as fire susceptibility, location of fire breaks, primary and auxiliary water supplies, escape routes and dispersal and rendezvous points.

One very interesting fact brought out by the conference was that more people lost their lives due to fire during the March 9-10, 1945, incendiary attacks on Tokyo than at any time in history. The fact that 80% of damage to cities during World War II was attributed to fire emphasized the need for better protection of all cities before they are subjected to fire storms and area fires such as were experienced by cities in Germany and Japan during World War II.

"A clean city and a trained populace may be a means whereby a city may survive. First aid fire fighting may well be the deciding factor in whether a fire service can control the *large* fires and thus save a city," according to Mr. Lowe.

Panel at the Portland C.D. Conference included (left to right) Horatio Bond, Chief Engineer, N.F.P.A.; Col. William A. Brewer, F.C.D.A.; Charles Buck, U.S. Forestry Service; Kyle P. Laughlin, F.C.D.A.

Miami Fire School Trains Cubans

Anyone attending the Miami, Fla., Fire College was apt to hear some strange sounds coming from the classrooms. Of course, to those who understand Spanish, they were not strange because they were coming from Spanish speaking firemen.

In April, Fire Chief N. L. Wheeler received, what might appear to some, to be a strange request. The Public Safety Department of Havana, Cuba, wanted a training course to be given some of its men and wrote to Chief Wheeler asking if it would be possible for his training staff to help them with the problem.

Fortunately, the Fire College was just completing a training course for new firemen, so it was satisfactory from that standpoint. Next was the problem of the difference in languages, but Capt. Manuel Padron and Fireman A. V. Darby were the answer to this problem, as they both speak Spanish fluently.

The course was set up, and the pupils arrived. The four-week course, which was arranged for them, included instruction in: modern firefighting tactics and techniques, use of modern firefighting equipment, formation of fire training school, which they intend to establish on their return to Havana, formation of a Fire Prevention Bureau, another project to be launched in Havana.

Representing the Havana Department were it's Fire Chief, Brigadier General J. B. G. Balbuena, Captain R. F. M. Figueroa, Captain J. R. E. Entralgo, Lieutenant I. B. P. Betancourt, Lieutenant D. G. V. Guzman and Second Lieutenant A. I. A. Izquierdo.

Left to right (seated) are Chief N. L. Wheeler, Sr., Chief of the Miami Fire Department and Brigadier General J. B. G. Balbuena, Chief of the Havana Fire Department. Behind them (left to right) are Chief M. O. Bullock, Chief of Training, Miami Fire Department; Captain R. F. M. Figueroa, Lieutenant I. B. P. Betancourt, Captain J. R. E. Entralgo, Lieutenant D. G. V. Guzman and Second Lieutenant A. I. A. Izquierdo, Havana Fire Department; and Assistant Chief W. R. Armstrong, Miami Fire Department.

New York Firefighters Fill Children's Pool

A lot of New York City kids were made happy late in July when the Fire Department got together with the Welfare Department Children's Center to fill the latter's pool with 85,000 gallons of water.

The pool, located on the sixth floor of the Center at 1 E. 104th street, Manhattan, is used by the Shelter's 356 children and youngsters from neighboring clubs. It usually requires about a week for the Center to fill the pool but when the need of this facility during the hot days was made known to Fire Commissioner Edward F. Cavanaugh, Jr., he ordered Engine 76 from its station at Columbus avenue and 102nd street to do the job. This the crew did in 85 minutes, pumping from a hydrant in the street, through a 2½-in. hose line leading into a window of the top floor.

J.C.'s Spearhead Fire Prevention

By CHIEF GEORGE COOLURES
Merced, Calif.

Over the past twenty years, those in the fire service have been aware of the fact that fire departments are not going to succeed in their all-out struggle both to curb the large number of fires and reduce their cost without first doing something about preventing them from starting. Thus, we have come to the era of fire prevention. If a fire department does not have a capable fire prevention bureau, it does not posses the most effective means of reducing fire losses.

Junior Chamber of Commerce at Merced, Calif., receives fire prevention contest trophies. Left to right: Chief George Coolures, Merced; Burke Stone, Underwriters; Gene Martin, President, Merced Junior Chamber of Commerce.

During the past two decades, we have had agencies, bureaus, associations and other statistical organizations — some sponsored by insurance groups, others by the government and still others made up of committees within the fire service itself—which have performed a great amount of good, through the dissemination of fire protection information.

But we also have today many self-styled "experts" who judge fire departments by local fire losses, which is somewhat the same as saying that because an auto insurance client has one serious accident in his driving career in which a death or injury resulted, he is one of the nation's worse drivers.

Leaders in the fire service know where the weak spots are in the fire picture, both on the local and national level. They also know that it is going to take more than the fire service alone to put the need for fire prevention activities across to the people in a manner they will understand.

It is this phase of the fire prevention problem with which we should be most concerned. The American people must be reached with this all-important message. They must be taught how they fit into the picture themselves and what part they must play. They must be shown how simple it is to curb the start of fires, to diminish the great losses and to save the needless injuries and deaths resulting from fire.

One of the best means in accomplishing these objectives is the local Junior Chamber of Commerce. These organizations have fire prevention as one of their year-round projects and in which they vie for honors, at both local and national levels.

We realized the potentialities of this group in Merced. Last year, our local J. C. group took second in the California finals in Fire Prevention for cities of all sizes. On their second attempt this year they not only took first honors for California but also garnered top national J. C. honors for their division and then won the coveted sweepstakes award which meant that they took the top honors in the nation in the field of Fire Prevention over all classes of cities and population groups. This is an exceptional record for an organization representing 18,000 population and a total membership of 120 Jaycees, and it points up the fact of what can be achieved by combined efforts and cooperation. In our local J.C.'s today we have our future leaders — men with youth, energy, determination, integrity and tenacity, and who are progressive, organization-minded individuals with civic pride.

These same young men represent a cross-section of our localities. Among their ranks you will find doctors, lawyers, accountants, business men, bankers, teachers, firemen, policemen, building trades men, farmers, laborers and students, all working to make their communities a better place in which to live.

Fire Service Asked to Promote Fire Prevention Week

President Eisenhower, in proclaiming October 3-9 Fire Prevention Week, called on all national organizations to renew the fight against fires which last year cost the nation thousands of lives and nearly $1 billion.

As in the past, the Fire Service is asked to take a leading part; to join in nationwide observance inaugurated by the National Board of Fire Underwriters, National Fire Protection Association, National Fire Waste Council and Chamber of Commerce of the U. S., the International Association of Fire Chiefs and affiliated groups, and the United States governmental agencies.

The theme adopted by the National Fire Protection Association for this year's F.P. Week is *"Let's Grow Up—Not Burn Up!"*

In preparation for the 35th annual observance of this occasion, the National Board of Fire Underwriters has begun distribution of one million copies of its Fire Prevention Week poster, in addition to 12 to 15 million other pieces of fire prevention and safety literature.

Among the more popular N.B.F.U. examples, beside the striking poster, are *"Your Fire Safe Home"* which describes the major causes of fires and how to overcome them. Another pamphlet on farm fire safety details many hazards and offers practical suggestions for ending them. Others describe fire protection in industry. They are titled *"Your Plant's Fire Protection"* and *"Stop Fires—Save Jobs."*

The Board also provides publicity material for fire departments to release to their local papers, for speakers and lecturers, and distribution to school children and adults.

The National Board's address is 85 John Street, New York, N. Y.

Got an Old Fire Engine?

Fire Chief R. C. Malmquist of the Minneapolis Fire Department is in a quandry. He has a problem. He wants an old-time horse-drawn fire steamer, for one of his local business men who is godfather or something for a boy's camp.

The idea is to acquaint boys of his area with the romance and the glory of the fire service—and the need of helping to confine the mounting fire losses.

Anyone who has an ancient "steamer" in his back yard, or who knows where to get it, get in touch with Chief R. C. Malmquist, Minneapolis Fire Head quarters, Minneapolis, Minn.

Oakland Firemen Win Certificates

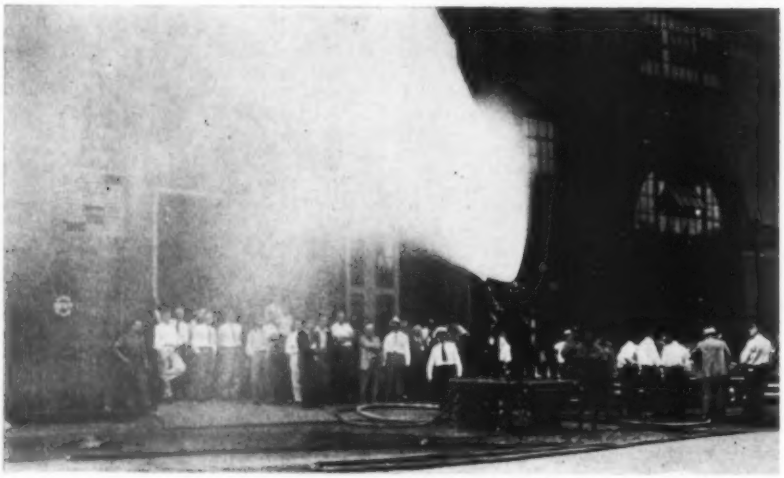
Assistant City Manager of Oakland, Calif., Hilliard B. Wilson (right in picture) awarded certificates to Oakland Fire Department officers for completing a municipal fire administration course in July last.

The course was purchased and paid for by the city, and fire department officers participated in the course on the group conference method. Conference leader for the group was Battalion Chief Thomas A. Harris. At the end of the course, which comprised 13 lessons, a written examination was given to the officers to qualify them for certificates. All of them passed the examination.

A second group of officers followed to take the course, under leadership of Captain Robert Macdonald. The city plans to continue the course until all officers have been properly trained in this important detail of their duties.

Oakland firemen take course in administration.

Short Cuts and Gadgets



Official St. Louis F. D. Photo by Beaumont

St. Louis Fire Department develops novel battery wagon.

ST. LOUIS CREATES TURRET TRAILER OUT OF ODDS AND ENDS

The St. Louis Fire Department boasts a "baby battery wagon," or turret trailer, that has found a ready acceptance among fire fighters, particularly those battling serious blazes.

The unit, pictured herewith discharging a healthy pattern of heavy duty fog, was designed by Chief Fred Witler of the Fire Department and constructed at the Department Shops, largely out of salvaged material. Turret pipes were evolved out of old ladder pipes.

According to correspondent George B. Beaumont (St. Louis Fire Department), the trailer has been used to form effective water curtains and at times has been taken right into buildings with a 1000 GPM nozzle on one turret, and a man stationed on the platform to operate it. It has also been drawn through the aisles of a lumber yard, discharging water on both sides. Still another application is the washing down of walls.

* * *

DRY CELL "ON ICE"

Since heat and low humidity tend to deteriorate dry-cell batteries, they will last longer if stored in the refrigerator. When removed from the refrigerator for use, the batteries should be allowed to stand and "thaw out," in order to deliver maximum power.

Flashlights, with the dry cells in them, should not be put into the refrigerator because of the danger of corrosion. They should be kept in a cool place.

(*From Popular Mechanics, Dec.* 1953)

* * *

POSTSCRIPT TO RURAL FIRE FIGHTING

In the June, 1954, issue of FIRE ENGINEERING (Page 498) we published a contribution from the chief of a small Illinois town fire department who told what he thought the farmer should do to improve his fire protection. Comes now another note from the same Chief (George H. Holmes, Carterville Fire Department, Carterville, Ill.) which explains how his fire department has been attempting to improve its own facilities, in the interest of better rural fire fighting.

Chief Holmes writes: "Thanks for the story—in the June issue of FIRE ENGINEERING. It might help others as it is helping us. When we are called to a rural fire, the first thing we do is to tell the farmer how to help us and, in that way, help himself."

"Since I wrote you" continues Chief Holmes, "our Fire Department took a small hose and ladder truck and mounted on the body a 375 gal. tank. We took the booster hose off big truck and bought 1000 psi pressure hose for that unit. Then we got a 1½-H.P. Homelite pump and put it on the rear step of the small truck, with an 18 ft. suction hose. Now we can use the water from the tank to fight grass fires as we drive along. We have the pump so mounted that by simply turning one thumb-screw, we can remove it and carry it to a well or pond and either use it with the booster hose, or with a 1½-in. hose.

Thank you Chief Holmes.

* * *

ONE-MAN COMPANY—TWO "ENGINES"?

In Baltic, Conn., resides David Roodi who, if our information is correct, is a sort of one-man fire department, with self-created "engines" ready to do or die in the interests of fire emergencies, anywhere in the neighborhood.

Brother Rood, who believes that in case of a national emergency, fire fighting would be up to the individual person, has assembled his own "apparatus" and "equipment."

The "company," which was started in 1951, according to Mr. Rood, now has one self-propelled unit and one that is pulled by hand. On "Engine 1" there are 150 ft. of ⅝-in. rubber garden hose, 3 fog nozzles that are adjustable from fog to straight stream, a low pressure fog applicator, a first-aid kit, and a respirator.

On "Engine 2," which is powered by a 5 H.P. gasoline motor, there are a six-gallon pumpcan and a home-made portable pump, powered by 1-H.P. gasoline motor. This pump is capable of "supplying two good streams at 5 G.P.M. and 50 P.S.I." Forty feet of ¼-in. hose and a garden sprayer nozzle are carried for tank work.

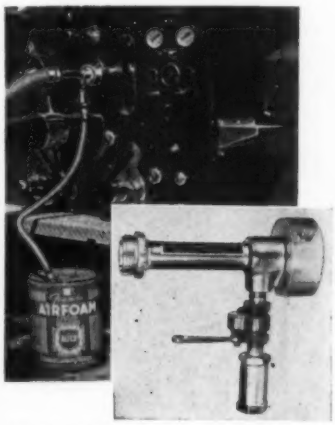
"The State Civil Defense Director in Connecticut, William Hesketch," says David Rood, "is anxious that individual home owners make an effort to be prepared in case of emergency and I thought a description of my equipment might prove helpful to others."

David Rood's two-piece fire company.

News of the Manufacturers

New Proportioner by American-LaFrance-Foamite

American-LaFrance-Foamite Corporation of Elmira, N. Y., manufacturers of fire fighting equipment since 1834, announces a new device called a proportioner.



American-LaFrance-Foamite Proportioner

It attaches to the 2½-inch discharge gate of a pumper and quickly produces airfoam for extinguishing gasoline, oil, or grease fires, etc. It is designed to draft 6% airfoam solution, or by use of an adapter, will draft 3% solution.

A wetter water metering device is a separate part of the unit, and has two positions, one for drafting wetter water solution for extinguishing ordinary combustible type fires, and one for drafting airform liquid for the flammable liquid fires.

It can be switched from one position to the other in seconds. After using the wetter water solution, however, the hose should be flushed with untreated water before switching to the airfoam solution.

It is fast, producing up to 600 gallons of airfoam per minute, frees one fireman for other duties as the pumper operator handles liquid containers. It has a wide operating pressure range on the inlet side of the proportioner from 200 to 300 psi.

May Appointed National Foam Plant Manager

National Foam System, Inc., of West Chester, specialist in fire fighting foam and equipment, announces the appointment of L. John May as plant manager.

Mr. May received his degree in chemical engineering from the University of Michigan and has carried on graduate study at Johns Hopkins and Temple University. He served during World War II with the 101st Airborne Division, from which he was separated with the rank of captain in 1945.

He was formerly with Mutual Chemical Company of America in Baltimore and Manganese Reduction Corporation in Baltimore (plant manager and assistant to the president. Prior to his appointment at National Foam, Mr. May was on the production staff at General Chemical Division, Allied Chemical & Dye Corporation at Claymont, Delaware.

Quaker Rubber Announces New Hose

A new fire hose developed for the oil and chemical industries is announced by Quaker Rubber Corporation, Div. of H. K. Porter Company, Inc., G. A. Dauphinais, Vice President and General Manager.

The new hose, named "Petrochem," is said to resist severe oil, chemical and abrasive conditions which tend to deteriorate ordinary fire hose. Materials reportedly having little or no effect on it include alcohols, bleaching agents, dry cleaning solvents, hydrocarbons, ketones, oils and synthetic detergents.

The hose is built of an oil resistant neoprene, covered with dacron yarn and is impregnated with a skim coat of neoprene. It is said to be tough, flexible, easily handled, capable of withstanding temperatures as high as 375 deg. F. and pressures of 500 P.S.I. It is available in 1½-in. i.d. and 2½-in. i.d.

Metcalf Uniform Fabrics

Metcalf Brothers & Co., Inc., New York woolen and worsted textile manufacturers, announces their new line of stock dyed uniform serges "Metcalf 386 P-F" and their "Twist Gabardines" in all desired weights, intended for the rigorous wear required by Police, Fire, and other uniformed personnel operators. These two complete lines carry the certification of U. S. Testing Co., one of America's oldest independent testing laboratories, as to strength, durability and shade control. Direct inquiries to 45 East 17th Street, New York 3, N. Y.

Gamewell Advances C. T. Smith

The Gamewell Company of Newton Upper Falls, Massachusetts, has announced the appointment of Mr. Charles T. Smith to the position of District Sales Manager for consolidated New England area.

Prior to his recent appointment Mr. Smith had been in charge of Gamewell's Eastern Massachusetts and Rhode Island territories since 1938.

Mr. Smith joined Gamewell in 1926, immediately on graduation from Worcester Polytechnical Institute. He was assigned to Gamewell's Chicago Construction and Sales Departments.

Assisting Mr. Smith will be the following Sales Engineers: Everett L. Angier, Chester W. Miles, Russell A. Glenn, E. Hoyt Young, George O'Brien, and Hawley Thomas.

Sentry Automatic Fog or Deluge Valve

McRae Corporation, 621 So. Spring St., Los Angeles 14, Calif., has introduced its Model 3300 piston-operated automatic fog or deluge valve for general use in fog and deluge systems.

Model 3300 is easy to install and operate, opens automatically when fire occurs. Delivery of water is instantaneous. There is practically no loss in pressure with open valve.

Automatic control is had by using 20 pounds of air pressure in the control line. Manual control from any remote point can also be used, if desired.

For complete particulars address the above company for circular Form 117.

William Pirsch Heads Peter Pirsch & Sons Co.

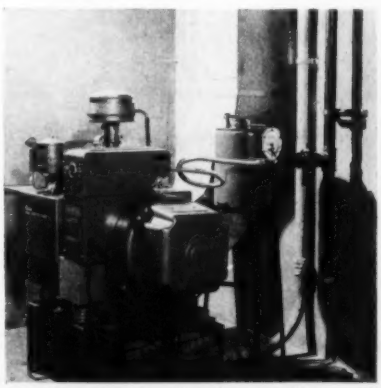
The Board of Directors of Peter Pirsch & Sons Co., Kenosha, Wis., on July 23rd elected the following Corporate Officers: William R. Pirsch, President and Treasurer; D. N. Even, Vice President and C. P. Even, secretary.

William R. Pirsch

This action follows the death on July 14th of the firm's founder and former President Pirsch (see FIRE ENGINEERING August, 1954, Page 690).

Minneapolis Adds Emergency Generators

The Minneapolis Fire Department has installed emergency generators at two of its fire stations where main radio transmitter receivers and auxiliary transmitters receivers are located. The transmitters are controlled remotely from headquarter consoles by fire alarm underground conductors.



Arrangement of standby plant installation. All exhaust gases are vented through the ducting up to ground level and dissipated through thermostatically controlled louvers.

Installed in the basement of Fire Station No. 8, 28th Street and Blaisdell Ave., is an Onan Model 10CW-4R air-cooled electric generating plant. The unit will provide 10,000 watts of 60-cycle, 120/208-volt, 3-phase, 4-wire electric service. Its dual transfer control automatically starts the generator set in the event of power interruption and automatically stops the unit when service is resumed.

The generating plant is normally operated on city gas, with gasoline as a standby fuel in event of city gas failure. Both standby units are tested weekly.

(*Continued on page 788*)

FALSE ALARMS

Breathes there a man with a soul so dead
Who never to himself has said,
"&*V-Z-&—X/!&/XZ"
As he stubbed his toe on the foot of the bed?

The mental patient walked up to the new superintendent. "We like you much better than we did the last fellow," he said.

The new official beamed. "Why?" he asked.

"Oh, you seem more like one of us."

The woman tourist posed for a snapshot in front of the fallen pillars of an ancient temple in Greece. "Don't get the car in the picture," she warned, "or my husband will think I ran into the place."

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Synonyms

The motorist who was stopped by a policeman for speeding, angrily called the cop an ass. . . . When he paid his fine, the judge reproved him for what he'd said to the cop. "Judge, you mean I shouldn't call a policeman an ass—"

"Certainly not," said the judge. "You must show respect for authority and not insult the police."

"Well, judge," the man went on, "you wouldn't care if I called an ass a policeman, would you?"

"By the way, whatever happened to them snapshots of us at the convention?"

The judge pondered this a moment, then his eyes twinkled. "Why, no, I suppose not."

The motorist turned to the officer who had arrested him and said sweetly, "Good-bye, policeman."

A fire in a run-down hotel on the Bowery brought the engines on the double. The source of the conflagration was traced to an old ne'er-do-well, obviously under the influence, who was sleeping blissfully away while smoke and flame billowed about him. "Get up." roared the fire chief. "What do you mean by smoking in bed?"

"You've got me wrong, Chief," whined the culprit, "I've never smoked in my life." "Then who," demanded the chief, "set fire to this miserable shack?"

The ne'er-do-well looked blank. "Search me," he said. "It was burning when I went to bed!"

Stork Modernized

The wife of a mountaineer had just become a mother for the seventeenth time. The ever-growing family seemed to be of concern to the oldest boy of the group. One day, lolling idly in the field, he spotted an airplane, the first he had ever seen. As he watched, several men parachuted out. He ran home, grabbed his father and said. "Get your gun and come a-running', pa! The stork just flew over and he's droppin' 'em down full grown now."

Girls who eat spinach have legs like this ! !
Girls who ride horseback have legs like this ( )
Girls who get drunk have legs like this) (
Girls who have good judgment have legs like this X.

It had rained hard. The windshield was sprayed with muddied water and the car had narrowly escaped several collisions. "Wouldn't it be a good idea to wipe off the windshield?" asked the anxious passenger.

"Not worth the bother," replied the driver, cheerfully, "I left my glasses at home."

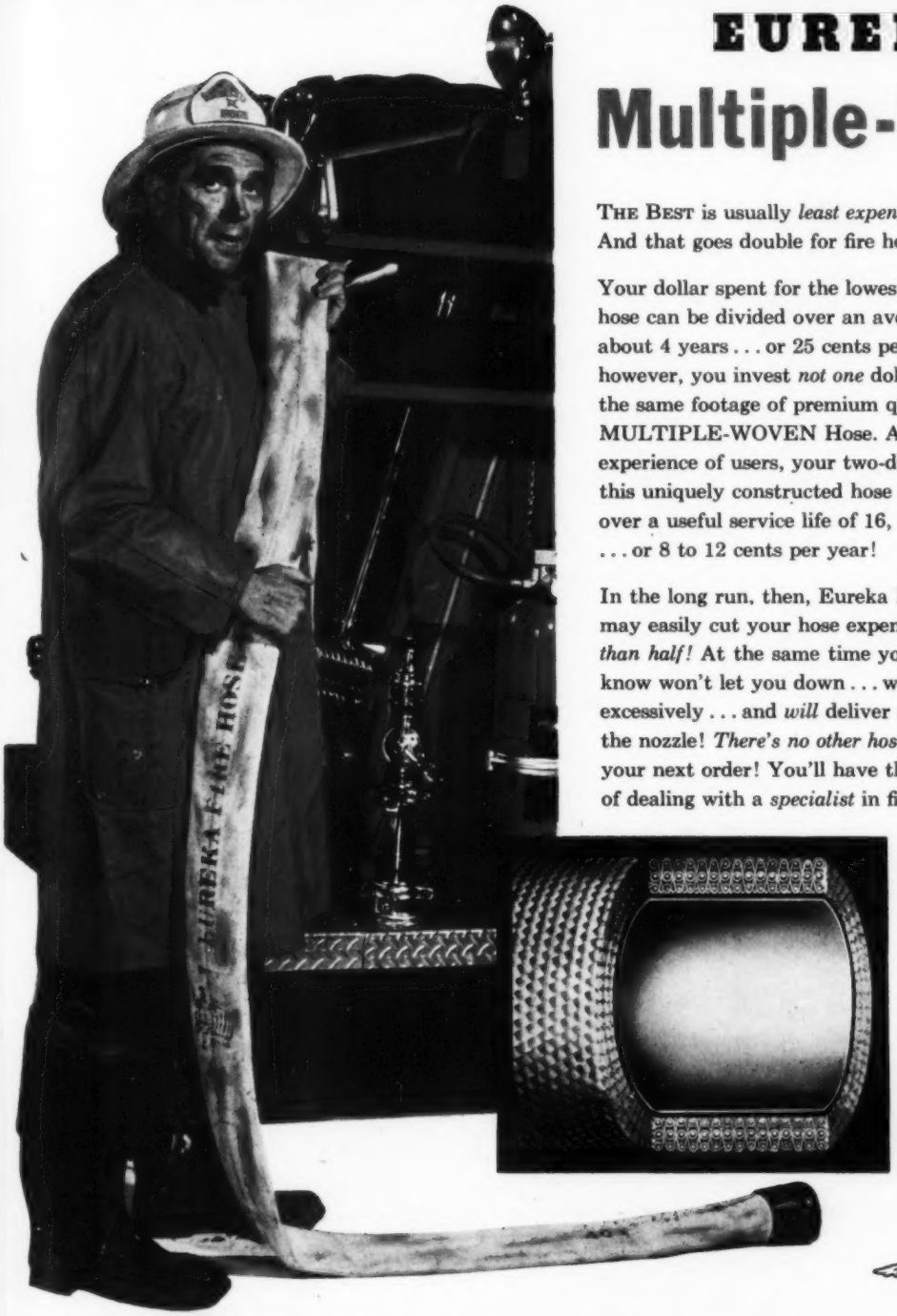
At one of our recent fires one fireman was running around with great excitement, exclaiming a woman had just fainted. . . . "Have any of you fellows got any whiskey?" One of the fellows produced a bottle and handed it to him. He took a long drink, and handed it back. "Thanks a lot, mister. It always makes me nervous to see a lady faint."

"Come out, come out, whoever you are!"

Let's talk DOLLARS and SENSE about

EUREKA

Multiple-Woven



THE BEST is usually *least expensive in the long run.* And that goes double for fire hose! Here's why:

Your dollar spent for the lowest-priced approved hose can be divided over an average service life of about 4 years . . . or 25 cents per year. Suppose, however, you invest *not one* dollar but *two dollars* in the same footage of premium quality Eureka MULTIPLE-WOVEN Hose. According to the experience of users, your two-dollar investment in this uniquely constructed hose may well be spread over a useful service life of 16, 20 or even 24 years . . . or 8 to 12 cents per year!

In the long run, then, Eureka MULTIPLE-WOVEN may easily cut your hose expenditures *by more than half!* At the same time you'll have a hose you know won't let you down . . . won't warp or writhe excessively . . . and *will* deliver maximum pressure to the nozzle! *There's no other hose like it.* Specify it on your next order! You'll have the added satisfaction of dealing with a *specialist* in fire hose!

All plies of Eureka Multiple-Woven Hose are woven *and interwoven* simultaneously, leaving no space between plies for collection of water, dirt or mildew.

"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Cotton Rubber-Lined Fire Hose

195 Hudson Street • New York, 13, New York • *Division of United States Rubber Company*

YOU GET—

Greater Protection
More Freedom of Movement

in ISSCO's new aluminized asbestos turnout coat

Here's a turnout coat that's light, pliable, heat-reflecting, and water repellent as well. This new ISSCO coat is far less cumbersome on a ladder; far more effective up close to a fire where its highly polished aluminized surface (not mere foil) reflects most of the heat. Coat has wristlets sewn into sleeves, is wool lined to the waist (for winter comfort), and fastens with big easy-to-manage snap hooks.

CLIP COUPON BELOW FOR FREE BROCHURE

when heat is intense

Use ISSCO's heat-reflecting aluminized asbestos hood and gloves. Gives you that extra protection around face and hands in approaching fire and in flash-backs. Hood has built-in helmet—adjustable to size: ¼" laminated safety glass window. Gloves shown are ISSCO 114-AL (One of many styles we furnish).

INDUSTRIAL SAFETY SPECIALTIES COMPANY

8th and Chestnut Sts., Perkasie, Pennsylvania

Manufacturers of

The ISSCO Insulated Fire Rescue Suit

Asbestos blankets in all sizes

Protective clothing for every situation!

Industrial Safety Specialties Co.
8th & Chestnut Sts., Perkasie, Pa.

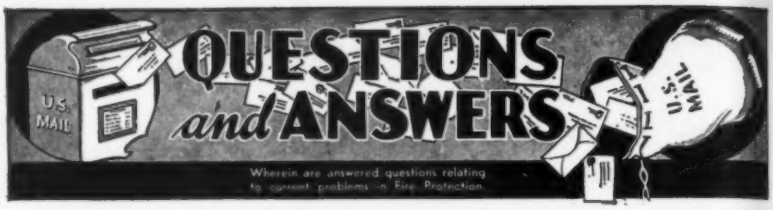
Gentlemen:
Please send me your new folder describing aluminized asbestos protective clothing

Name _____

Organization _____

Address _____

_____



Pressures on Parallel Lines

To the Editor:

What would the engine pressure be in the following layouts.

1. A single line of 2½-inch hose 200 feet long and equipped with a 1⅛-inch tip?

2. Two lines of 2½-inch hose each 200 feet long and each equipped with a 1⅛-inch tip?

3. Three lines of 2½-inch hose each 200 feet long and each equipped with a 1⅛-inch tip?

In each case a 1,000-gallon pumper is used. J. M.

Answer: As neither engine pressure nor nozzle pressure is indicated, one would have to be assumed before the problem given can be solved.

If we assume the engine pressure is 120 pounds, then the nozzle pressure on one, two or three identical lines supplied by this pump at 120 pounds pressure would each give 70 pounds, approximately, at the nozzle. The discharge from each nozzle would be approximately 313 gallons per minute, giving a total discharge of 939 gallons per minute.

Where several identical lines are laid from a pumper, and each is equipped with the same size nozzle, the nozzle pressures on all three will be the same, as well as will the engine pressure.

Reaction of Stream

To the Editor:

I have always been given to understand that when any force is exerted in one direction, an equal force is necessarily exerted in the opposite direction. However, the formula for nozzle reaction does not seem to bear this out, and I am at a loss to understand why.

As an example, the reaction of a 2-inch nozzle with a pressure of 100 pounds would be, according to formula, 1.5 x 4 x 100, or 600 pounds, in spite of the fact that it is exerting a force of only 314.16 pounds, when figuring the pressure at 100 pounds per square inch and multiplying it by the number of square inches of the nozzle orifice (.7854 D^2).

I am aware that I am either overlooking something or figuring incorrectly. I would greatly appreciate an explanation of this paradox. H. L. S.

Answer: The impulse, or reaction, of a jet issuing from an orifice is double the hydrostatic pressure on the area of the orifice. This theoretic conclusion has been verified by many experiments.

For a full explanation of orifice reaction, you are referred to a standard text on hydraulics which is "Treatise on Hydraulics," by Mansfield Merriman. This book is published by John Wiley and Sons, New York, and copies are on file in all public libraries in the country.

It contains the best explanation of reaction from nozzles that we have encountered.

Fire Extinguishment by Fog

To the Editor:

We were shown a movie "Using Water Wisely" and in it, it showed the extinguishment of a structural fire at the temperature of 1700 to 1900 degrees F. The structure was completely involved. In walked the firemen with fog and extinguished the fire with 18 gallons of water.

I was told that it was the cooling action of the fog that extinguished the fire. My idea is that the water is broken up into small particles and is quickly turned into steam. The steam excludes the oxygen and the fire is put out by suffocation, or displacement of oxygen. Which is correct? H. S.

Answer: The operation is two-fold: The fog absorbs heat from the fire, and this absorption is increased by the process of evaporating the water. Once the water is evaporated, then the steam has a smothering effect.

But it should be pointed out that if you can see steam, it is no longer a vapor but rather a very fine mist. Steam, as a vapor, is colorless.

Steam that you can see might be classed as fog, i.e., air filled with a number of fine individual particles floating suspension.

But if the temperature is sufficient at a fire to keep the steam in its vaporized state, the steam will displace the air and extinguish the fire by smothering.

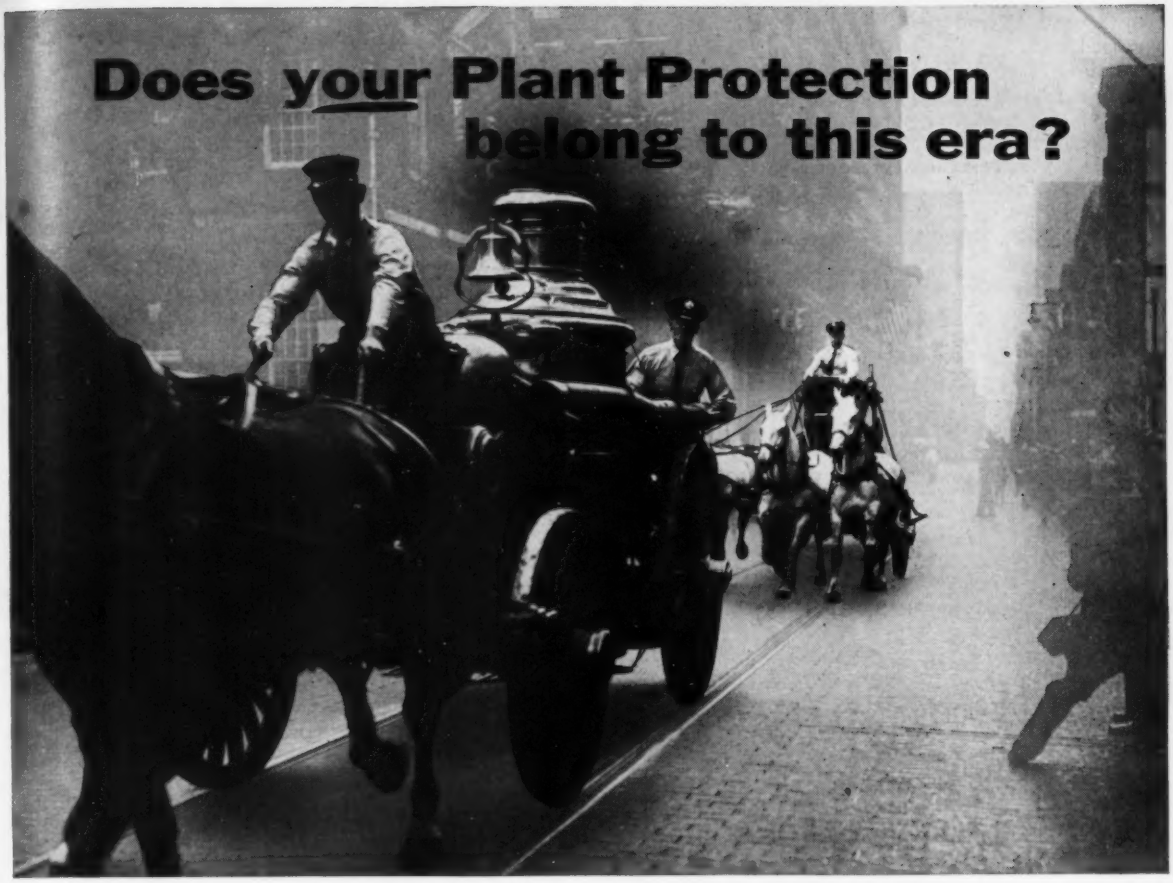
As to the relative extinguishing effect of the heat absorption by the fog and the smothering by the steam, this would depend entirely upon the nature of the fire.

Pumper Requirements for Branched Layouts

To the Editor:

I would appreciate your giving your opinion of the hydraulics problem and hose layouts given below:

1. A 1500 gallon pumper is pumping from a hydrant through 300 feet of 3½-inch hose to a portable manifold (2½-inch discharge ports with independent shut-off valves) which discharges through six lines of 2½-



Let Us "FIRE-ENGINEER" a system for your plant with AER-O-FOAM

The science of fire-engineering has come a long way since the era of the horse-drawn fire engine. Now you can protect your flammable liquid fire hazards by calling in National Foam engineers, who survey your plant and plan a modern fire-engineered system for your particular needs. They check locations, processes, flash points, existing system, water supply, and other factors. They recommend a basic AER-O-FOAM System with manual or automatic control, stationary or mobile operation, and all the proper equipment . . . foam chambers, overhead units, dip-tank systems, nozzles, extinguishers. After installation, National Foam furnishes a complete operating manual.

National Foam's modern fire-engineered service offers the best in system design, equipment, and instant, positive, fire-tested AER-O-FOAM. Call in National today to discuss your flammable liquid fire problem.

Write for new, free booklet, "Foam Fire Protection"

NATIONAL
FOAM SYSTEM INCORPORATED
Headquarters for Foam Fire Protection—WEST CHESTER, PA.

inch hose each 150 feet long and equipped with 1⅛-inch tips. Nozzle pressure is 50 pounds.

2. A 1500-gallon pumper is pumping from a hydrant through two lines of 3½-inch hose 300 feet long to a manifold which discharges through six lines of 2½-inch hose each 150 feet long and equipped with 1⅛-inch nozzles. Nozzle pressure is 50 pounds.

3. A 1500 gallon pumper is pumping from a hydrant through two lines of 3½-inch hose each 600 feet long to a manifold from which six lines of 2½-inch hose each 150 feet long and equipped with 1⅛-inch tips are stretched.

4. A 1500 gallon pumper is pumping from a hydrant through two lines of 3½-inch hose each 600 feet long to another 1500 gallon pumper from which a line of 3½-inch hose 600 feet long is stretched to a manifold which discharges through six lines of 2½-inch hose each 150 feet long and equipped with 1⅛-inch tips.

Are the above hose layouts practical? What engine pressure would be necessary to supply the above layouts?

If the above hose layouts are impractical, what hose layouts would you suggest, bearing in mind that each company carries 600 feet of 3½-inch supply line and 1⅛-inch tips only?

I am particularly interested in the conversion factor for parallel 3½-inch hose.

Our 1,500-gallon pumpers are each supplied with a portable manifold with two 3½-inch inlet ports and size 2½-inch discharge ports. Six hundred feet of 3½-inch supply is provided on each pumper.

The principle is to allow one company to lay the manifold in front of the fire building and then lay reverse and place the pump at the hydrant. The original company would, of course, lay the first 2½-inch hose line into the fire and five subsequent companies could lay their 2½-inch lines off the manifold.

According to my calculations, our 1,500-gallon pumper could supply three 150-foot working lines of 2½-inch hose with 1⅛-inch tips with a single 600-foot supply line of 3½-inch hose, but the engine pressure would be approaching 300 pounds per square inch and that is excessive pressure for hose.

J. E. P.

Answer: We assume that the 1,500 GPM pumper you include in the layout is a Class A pumper which means that it can deliver 1,500 gallons per minute at 150 pounds pump pressure.

In the first layout, a single line of 2½-inch hose is supplying six 150-feet lines of 2½-inch hose. The flow from the six 1⅛-inch nozzles would be 6 × 265, or 1,590 gallons per minute. The friction loss in each of the 2½-inch lines would be 28 pounds and the friction loss in the 300-foot line of 3½-inch hose would be 270 pounds. The nozzle pressure is, of course, 50 pounds. Therefore the engine would have to deliver 270 + 28 + 50, or 348 pounds pressure with a discharge of 1,590 gallons per minute. Of course, this is far beyond the capacity of the pumper, and the layout is therefore impractical.

In the second layout you have two parallel 3½-inch lines supplying a manifold. These lines are each 300 feet in length.

The flow would be the same as in the first problem, and the friction loss in the single lines of 2½-inch hose likewise the same. The friction loss in the two parallel 300-foot lines would be 67 pounds for the 300 feet. Thus the engine pressure would be 67 + 28 + 50, or 145 pounds. This layout is practical, and the pumper can be expected to maintain approximately 50 pounds at each of the six lines.

In the third layout, two 600-foot lines of 3½-inch hose supply the manifold. The friction loss in parallel 3½-inch lines 600 feet in length, for the flow as given above, would be 134 pounds. Friction loss in the lead lines, 28 pounds, and the nozzle pressure, 50 pounds. The engine pressure would be 134 + 28 + 50, or 212 pounds, which is beyond the capacity of the engine to give.

Above: Showing the handy filler for INDIAN PUMPS—just another of the many extra values you can get with H-H PUMPERS.

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H-H

FIRE APPARATUS

THIS SAME TYPE OF PUMPER CAN BE YOURS ON YOUR 1½ OR 2 TON CHASSIS — AND AT SURPRISINGLY LOW COST

Here is another example of H-H clean, streamlined, functional pumper body on standard commercial chassis. Equipment with 500 GPM "Class A" pump—800-gallon tank—two H-H reels in side compartments, each with 200 ft. of ¾" booster hose. These compartments are fitted with automatic remote control lighting. Other compartments for generators, flood lights, portable pumps, etc. Body carries 1200 ft. of 2½", 800 ft. of 1½" and two lengths of hard suction. A thoroughly practical rig for almost any department—and at a cost surprisingly low.

For further data and prices—write

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In the final layout, the friction loss in parallel 600-foot lines of 3½-inch hose would be 134 pounds; the friction loss in a single line of 3½-inch hose 600 feet in length would be 540 pounds; the friction loss in each of the lead lines 28 pounds, and nozzle pressure, 50 pounds. The engine pressure would have to be 134 + 540 + 28 + 50, 752 pounds, which is far beyond the capacity of the pumper to produce.

Of all these layouts, the only one which might be considered fully practical is the second one where two parallel 300-foot lines of 3½-inch hose supply the manifold which discharges through six 2½-inch lines each 150 feet in length.

The conversion factors for 3½-inch hose are as follows:

Single line of 3½-inch hose to a single line of 2½-inch, 5.8.

Two parallel lines of 3½-inch hose to a single line of 2½-inch, 20.88.

South Carolina Starts School

A fireman's training school to promote better firemanship among the state's fire fighters has been established under the sponsorship of the South Carolina State Fireman's Association in conjunction with the State Department of Education, it was announced by Columbia, S. C., Fire Chief A. McC. Marsh.

Henry Burton Wells, who has been active in fire suppression for 34 years, has been engaged as the itinerant instructor, who will take the training program right to state fire departments.

Although designed primarily for training volunteer firemen, it is said the program will be open to paid departments. The expenses of the school are paid by the firemen's association and the education department. The services are free to fire departments.

Tentative schedules call for the school to run five days in each department. Chief Clarence E. Fischer of Orangeburg, S. C., is president of the South Carolina State Firemen's Association.

Urges Caution on Air Conditioners as a Fire Hazard

From Kansas City, Mo., George J. Davidson, commissioner of buildings and inspections, sounded a warning in July about incorrect installations of air conditioners constituting a fire hazard.

Despite many cautions warning home owners and apartment dwellers still are buying room air conditioners and plugging them into ordinary household electrical outlets, according to Davidson, who said his division has received many complaints since June of wiring burning and fuses blowing out from the connections of the air conditioning appliances. Most of the trouble he said came from old and deteriorated wiring.

"In order to carry this load," he said, "a No. 10 wire should be used and a single circuit run to the appliance. The wall receptacles into which the machines are plugged should be of the heavy-duty polarized type." And he added that the best way to avoid trouble is to have a qualified electrician make the installation.

The average ¾-ton conditioner requires a starting load of 27 amperes, Davidson said, and a running load of 15 amperes. This load on undersized or deteriorated wire causes an immediate heating, and with improper fuses, causes fires.

Get into action FASTER with...

Fyr-Fyter

SUPER FYR-FLEX 600 & 400

it's made with DACRON! The new, stronger, synthetic fibre load-carrying "filling" cord.
it's 25% LIGHTER! Easier to carry . . . easier to handle. Gets into action faster!
it's more FLEXIBLE! Easier to coil and uncoil . . . cuts loading time. Permits storing more hose in truck bed.
it's 50% STRONGER! 600 & 400 lb. test . . . withstands 50% more pressure than any hose of the same diameter.

For faster fire fighting action, get Fyr-Fyter's new Super Fyr-Flex . . . the fire hose that now outmodes conventional hose! Its exceptional strength without bulk, made possible with Dacron reinforcing "filling" cord, plus its lightness and flexibility, gives you top performance efficiency. And for longer life and economy, Super Fyr-Flex provides a new high in resistance to heat, chemicals, water absorption, mildew, abrasion, and wear. Plan now to take advantage of the performance extras you get in Super Fyr-Flex fire hose . . . write for complete information today!

TEAR OUT THIS COUPON AND MAIL WITH YOUR LETTERHEAD TODAY!

☐ Send full details on Fyr-Fyter Super Fyr-Flex Hose.

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DEPT. 10 FF-2

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Among the Buffs

By Paul C. Ditzel

ONE of the dubious joys of writing a regular column for this or any other publication is the fan mail that results. I say "dubious" because of the peculiar character of some of the letters received.

A psychotic tendency of a fringe of this compulsion the firebuffs euphemistically call a "hobby" (for lack of some more socially acceptable term) is the taking in hand of pen, pencil, charcoal or Indian arrowheads to scratch off a fast letter to this column. For every intelligent letter the mailman pops into our box, there are a dozen from the screwballs.

That, my dear friends and fellow readers, will be the subject of this month's sermon. So if you more literate buffs will hang on for the ride, we'll proceed to digress on others who are less so. Probably I should speak only of the legitimate buffs—whatever they are—and I'm beginning to believe they're as dead as the dodo—if my mail is any indication of your ability to sit up and take notice. . . .

These must be the dog days, because I've really received some dogs in the mail.

These letters, usually scribbled hastily on a 1918 postal card with a pencil that was sharpened in that year, too, start out:

"I am one of your most avid readers, Mr. Ditzel, and turn to your column first thing, everytime my copy of FIRE ENGINEERING arrives. You are indeed a gentleman, scholar and exponent of the learned art of fire protection. . . ."

This always is the tipoff of better things to come. But frankly, those are the letters that usually hit the column. (I wouldn't want Editor Fred Shepperd or His-Gal-Friday Dorothy Pedersen to know that I'm not being read.) But I digress.

This letter, which always begins with the flowery, well-turned flattery, then gets down to business:

"I was wondering if you would *immediately* (always underscored) send me a complete listing of all apparatus in the Los Angeles City and County Fire Departments. Also send me a description of how both departments handle their alarm systems, a complete up-to-date list of all fire alarm box locations in Los Angeles County, a breakdown of apparatus, telling the make, year, pumping capacity, number feet of ladders carried and the captain's name in case I ever get out there to Sunny California for a visit. Oh, yes, I also need some more badges, cap emblems, buttons and assignment cards to complete my collection. Yours truly, Joe Bigosh, of Oshkosh."

All that on a postal card, you ask? May I state here and now that fire buffs have here the most versatile ability of writing in tiny hen scratches. Editor Fred Shepperd offered to buy me a microscope, but I told him I would settle for more money for this monthly chore. He didn't like the idea.

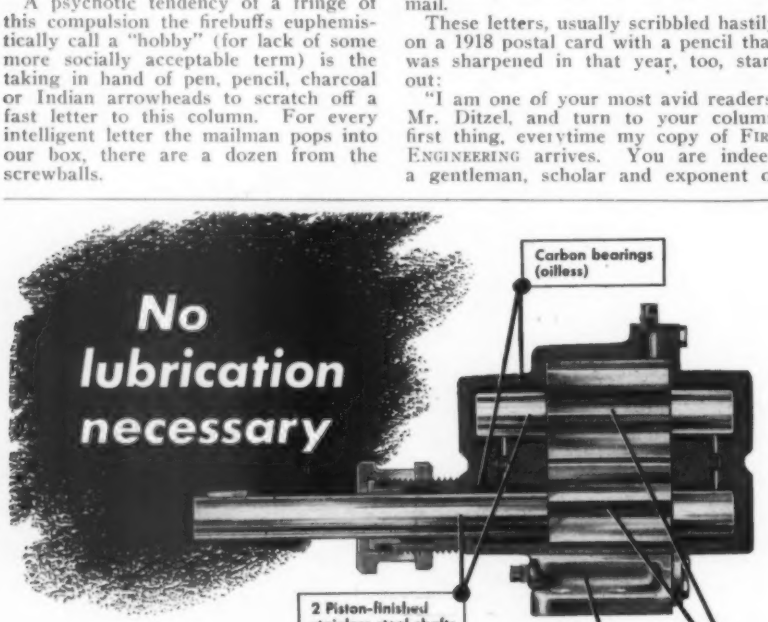
Nearly all such communications demand "immediate" attention and always fail to add a grateful acknowledgement. Nor is return postage enclosed. That's fine with me, however. You see, I'm a poor letter writer. They somehow never get answered.

And then we have the typewriting demon who sends along a 15-page manuscript, complete with a photo layout which they proceed to "tell" me to use in my very next column. Space (and money) are the things columnists have the least amount of. Such letters also indicate that the writer doesn't read this column, inasmuch as I never use pictures (if I could, I'd use my own mug) and Miss Pedersen is a demon with those scissors when my column runs too long.

I especially delight in deep-sixing those demands for editorial space in the "next" issue. These invariably arrive five minutes before FIRE ENGINEERING is mailed from New York. I have one on my desk now. It asks for a "nice writeup" in the August issue. And it came today. Now, dear friends and fellow readers, the August issue is as old as yesterday's newspaper as far as the Old Salts at FIRE ENGINEERING are concerned. We're preparing for future issues. The copy, which is useless for the next issue, would have made good reading. For the information of buff club secretaries—I must have your news on the 15th of the month preceding the next month's issue.

Now let's not have a deluge of mail asking me to explain the preceding sentence. I've been trying to get The Boss to explain it to me for years. All I know is that my copy goes winging out of here on the 21st of the month for publication in the following month's issue.

One letter I'm sure to get before many weeks pass. And that's one from the irate buff club officer who wants to


No lubrication necessary
Carbon bearings (oilless)
2 Piston-finished stainless steel shafts
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OBERDORFER
BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

PERFORMANCE DATA—No. 26 and No. 13 PUMPS

Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

know why in the ——— their stuff didn't make my column. Now you know. But I'm still going to do my writing in a bullet-proof vault attached to the side of our oceanside villa.

While I'm being cranky, let me tell you about the buff from Brokenjaw, Minnesota, who shipped off a 25-pound crate of old newspaper clippings, postal cards, neckties with fire engines embroidered upon them (I wear only bow ties) and other such priceless tidbits. The Railway Express man leaned on our doorbell for 15 minutes at 7 ayem one Sunday morning to collect freight charges of $9.73. In my half-sleep I imagined that this must be something the Warden ordered. So I paid the man and grumbled off to bed. Half an hour later, the special delivery messenger awakens me again. This time a special delivery from the Browenjaw, Minnesota, fire fan.

"I am one of your most avid readers, Mr. Ditzel. . . ."

A stalwart citizen, that fan. I must write him up some day in my column.

Any of you lounge lizzards care for a rebuttal?

There's the postman again. . . . He always stops at my place, 419 Napoleon St., Playa del Rey, Calif.

World Wide Fire News

By Roi B. Woolley

Super-dooper Fire—Not in the Script

A super-colossal fire that wasn't part of the script for the movie "Helen of Troy" destroyed a giant reproduction of the ancient city of Troy, in Rome, Italy, on Aug. 19.

Wood and papier-mache walls, towers and battlements collapsed as fire roared on a two-acre movie set. Five persons were hospitalized from injuries.

Nine pieces of fire apparatus and fifty firemen were rushed from the center of Rome to assist local firemen at Italy's biggest film studios on the outskirts of the city. They extinguished the blaze in an hour and a half, but the damage was considerable.

During the fire some 2,500 movie extras playing Greek warriers, watched the walls which they had tried to scale all morning come tumbling down. Little was left of the ramparts shielding beauteous Helen and her lover, Paris, from the Greek armies.

* * *

Ever See a Freight Car Smoking?

Flomaton, Ala., isn't a very big spot on the map, but its 1,200 persons got a "big city" scare the night of Aug. 17, from a smoking freight car labeled "High Explosives, *Dangerous.*"

An alert for possible evacuation of the 1,200 souls was called off, and roadblocks on two heavily traveled highways were taken off by Alabama and Florida highway patrolmen, when demolition experts found that the smoke was coming from an acid container and not burning munitions.

The car had been pushed from the Louisville & Nashville Railroad yards in Flomaton to a siding about 1½ miles west of the village, after trainmen noticed smoke pouring from the car during the afternoon.

While precautionary safety measures

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Whether you are a "Regular" or a "Volunteer" a miniature badge is a must for off-duty recognition. Carry your miniature with pride, it's a small token of your contribution to your community.

Contact your Blackinton Badge Dealer today and ask him to show you actual badge samples.

Most of the popular miniature styles are also available in regulation size badges. Miniatures have solid backs.

Blackinton has the largest selection of miniature badges in the country

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ATTLEBORO FALLS, MASS.

were being taken, explosives experts were summoned by helicopter from Elgin Air Force Base, Fla. They arrived promptly, to find smoke pouring from the acid container which had burst inside the boxcar. They neutralized the smoking acid with chemical foam, and called off the emergency evacuation session.

Lt. Col. Dewitt R. Searles, Elgin public information officer, said he understood the car contained "inert bomb clusters with small fuses which would have exploded but which would not have the high explosive effect of bombs."

* * *

Spilled Hazards

Disaster, from the same cause, hovered over two widely separated communities within a few weeks of each other earlier this year, to emphasize the peril of spilled gasoline. Here are the accounts, briefed from the press reports:

SHELDON, IA.—Fire and police officials stood watch to prevent a spark from touching off a 12,000-gal. pond of gasoline, only three blocks away from Sheldon's Main Street and less than a block from the nearest homes.

The "pond" formed when a 12,000-gal. gasoline storage tank burst a seam, while it was being filled by a transport truck. The tank, one of three operated by a local firm, was equipped with a gauge to indict its contents. Authorities said the gauge apparently was frozen and failed to indicate the tank was full. Those loading the tank continued pumping operations until the seam burst.

Fire Chief Zane Hudson, of Sheldon, said it would take a week before the danger was past. Meanwhile, "slow" orders were issued to all Illinois Central Railroad trains passing through town because tracks are close to the pond. The great danger, of course, was from fumes, and firemen sprayed the surface of the gasoline with high-pressure fog to reduce the vapors. The entire area was roped off, all unauthorized persons and curious persons were kept at a distance and all flames and fires in the area were extinguished.

SOUTH NORFOLK, VA.—Sleeping South Norfolk, Va., residents didn't worry, but those awake at an early hour did so when they learned that nearly 10,000 gals. of gasoline had been spilled and was in danger of igniting.

Due to the quick work of the South Norfolk Fire Department, however, which received an alarm from the Norfolk & Portsmouth Belt Line Railroad that several cars had been derailed on tracks near the Gulf Oil Company, the danger was overcome.

Of the derailed cars, one gasoline tank car overturned and spilled much of its eight to ten thousand gallon contents on the ground. One other car derailed was a tanker.

Fire Companies 1, 2 and 5 under command of Deputy Chief John Ben Gibson and Deputy Thomas Van Vleek pumped between 50 and 60 gals. of foam liquid on the spilled gas. Some of the foam was supplied by the Norfolk Naval Shipyard when it was found the fire fighter's own supply was running out.

During operations the area was policed and all precautions taken to prevent ignition of fumes.

* * *

From the World News Ticker

Peiping papers reported July 15 that a million dollar fire last December in a Harbin, Manchuria, sugar mill resulted in punishment for several comunist officials and a shakeup in the Red party there. . . . Early in August, prairie fires, fanned by gales reaching 80 miles an hour, caused damage estimated at more than $1 million in South Africa's Natal Province. One woman was burned to death. . . . On July 22, fire swept through squatter villages in Hong Kong, making about 30,000 persons homeless. Early reports listed two dead and thirty-one injured. . . . A five-hour fire early on August 6 destroyed the trading district of Ilagan, capital of Isabela Province, Philippines, causing damage estimated at $1½ million and leaving 2,000 homeless. Ilagan has a population of 36,000. No reports of casualties. . . . A famous wind mill landmark in Rotterdam, the Netherlands, was lost when the Mill De Noord burned to the ground in July. The windmill, long a tourist attraction, was reportedly the last working mill in the Dutch city. It was built in 1577, and survived unscathed when flames destroyed surrounding buildings in 1940. . . . In Hull, Eng., shopkeeper George Clark got hot about his merchandise. Decided to have a hot sale. Put a sign in his window advertising "red hot news" about some of his goods. Minutes later his shop caught fire. . . . Fourteen persons, all from two families, burned to death July 14 in a fire which swept Kamshan Village in the new territories section of Hong Kong. Seven other Chinese were injured. . . . In Winchester, Eng., one Harold Rolfe, 38, couldn't stand the sound of church bells. They rang through his head and sent him into fits of depression. During one of his fits,

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the bells of St. Mary's Church in the little village of Alton started to toll. Rolfe couldn't take it, and set fire to the church. Damage $1,000. . . . The usual heavy assignment of D. C. Fire Department equipment sireened up to the Capitol early the night of July 28 when smoke began to pour from air-conditioning ducts in the Senate wing. Workmen beat the Brothers to it, doused fire before the pro's could get into action. Fire was in filter in one of the air-conditioning units. No injuries, no damage. . . . The British Ministry of Transport has ruled in its findings of a 12-day court of inquiry that sabotage was "improbable" as the cause of the fire which gutted the 14,650-ton troop-ship Empire wind-rush in the Mediterranean last March. Four of the ship's crew died in the engine room. . . . In Paris, France, an elderly spinster, who was mourning the death of her sister, sought her own demise by turning on the gas in her apartment. A neighbor who had been worried over the spinster's despondency rang the doorbell of the apartment. The electric spark touched off a series of explosions which killed five persons, injured eight, wrecked three stories of the building, and damaged a fourth. Two firemen were among the dead. . . . New York City tried out its air raid sirens Aug. 8 in a downpour. Folks were more interested in ducking rain than evaluating decibels. Police in the five borough precincts reported receiving 49 telephone calls from citizens who wanted to know why the sirens were blowing. Fire alarm Headquarters got inquiries—all despite advance newspaper and radio warning. . . . Police of Caracas, Venezuela. reveal that two persons were killed and four others injured by falling fragments of live anti-aircraft ammunition. early in July, during an air raid drill. There were no immediate explanation why live ammunition was used. People were warned beforehand, however, to stay indoors during the practice blackout.

Winnipeg Wins Honors

The City of Winnipeg, Manitoba, has the lowest coverage per capita fire loss among the mine largest cities of Canada since the end of World War II.

Efficiency of the Winnipeg Fire Department, headed by Chief David Clawson, is a contributing factor for this record, according to the press. Training of personnel, and up-to-date equipment, are given as special fire department assets, by Chief Clawson.

Latest acquisition is a 55-ft. aerial "quint" which is push-button operated; has 300 gal. booster tank, and 600 G.P.M. pump (at 120 P.S.I. or 60 G.P.M. at 700 P.S.I.).

The department is particularly proud of its shops at No. 9 house. The 500 fire fighters and 13 fire stations of the department, as well as the rolling stock and other equipment, are maintained at a high degree of efficiency.

French Cities to Have Salvage Corps?

According to reports from abroad, fire insurance interests, as well as the Government in France, are considering the better organization of fire salvage work in principal urban cities of provincial France.

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Obituaries

Chief G. E. Huff Dead

The untimely death of Gordon E. Huff, M.M., O.B.E., Chief of the Brantford, Ont., Fire Department for the past 16 years on July 20 last, shocked his many friends in the Dominion Fire Service, and in the States.

Chief Huff was born in Brantford in 1896 and joined the fire department Christmas Day, 1919. He was appointed Chief in 1938, succeeding Chief D. J. Lewis. Under his leadership the Brantford Fire Department became one of the most progressive in Ontario, winning many awards for fire prevention.

Chief Huff served notably with the armed services in two world wars and in 1942 he was appointed to command the Corps of Canadian Overseas Fire Fighters, which fought the British "blitz" fires side by side with British firemen. In 1911 he enlisted in the 25th Brant Dragoons, and at the outbreak of World War I, he was drafted (at 17) in the Canadian Expeditionary Force. He served in France five years, being ultimately promoted to Squadron Sergeant-Major. In 1937 he was a member of the Canadian Military Contingent which attended the Coronation of King George the Sixth.

He served during World War II until 1942 with the R.C.A.F. Fire Fighting Service, with rank of Flight-Lieutenant, later being stationed at Winnipeg as Fire Prevention Officer for No. 2 Training Command until he was appointed to command the Corps of Canadian Fire Fighters.

In addition to the O.B.E., Chief Huff was awarded the Military Medal for his first world war service. Other decorations included the British War Medal; Victoria Medal; 1914-15 Star; Defence Medal; 1939-1945 War Medal; Colonial Forces Long Service Medal; and two Coronation Medals.

Chief Huff's career was not limited to military and fire services. He found time to lead numerous civic, humanitarian and other movements. He was a Charter Member of Local 460, Brantford Fire Fighters' Association, and this year was First Vice-President of the Canadian Association of Fire Chiefs. He was also active in the Ontario Fire Chiefs' Association and numerous fraternal and civic organizations.

On Friday, July 23rd, he was buried in Mt. Hope Cemetery, Brantford, amid impressive ceremonies attended by many prominent officials of the fire service, Canadian Government, military and other interests. Firemen from 20 Ontario Centers, the Fire Marshal's Office, Canadian Army Fire Service, veterans of the Canadian Corps of Fire Fighters, and the RCAF, were present

Ex-Chief W. T. Shaw Dead

William T. Shaw, Sr., Chief of the New Britain, Conn., Fire Department from 1947 to 1952, died at the age of 67 on July 31. He had been a patient in the Veterans Administration Hospital, Newington, since earlier in the month.

Funeral services took place on Aug. 3 in St. Joseph's Church and burial was in St. Mary's Cemetery. Members of the New England Association of Fire Chiefs attended as an honor guard. Members of the New Britain Fire Department were bearers.

A member of the New Britain Fire Department for 32 years, Chief Shaw was named Chief of Department in 1947. During the illness of former Chief William J. Noble, Shaw was Acting Chief for nine months.

Following his retirement and despite the fact that he no longer needed to assume any responsibility for fighting fires, Chief Shaw was one of the key workers in a comprehensive fire prevention program planned for Hartford County. As a local fire marshal he won statewide recognition for his services.

A native and lifelong resident of New Britain, Chief Shaw was the son of the late Bartholomew and Anna Sullivan Shaw. A World War I veteran, he saw more than two years of service in France. He was a member of the New England Association of Fire Chiefs.

TOM MAGNER

Jim Deasy Dies Suddenly

The fire service has lost another stalwart in the untimely death of James J. (Jim) Deasy, former Battalion Chief of the New York Fire Department and universal friend-to-firefighters who died suddenly at his home in Greenville, N. Y., Aug. 13th.

Jim Deasy, one-time instructor for New York State's Education Department, following his retirement from active service, was one of the most widely known and respected instructors in firemanship in the East. He was on the staff of the Delehanty Institute, New York, for many years and he lectured before most of the fire service

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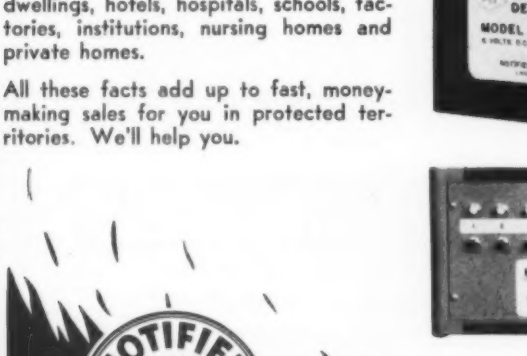

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organizations of any size, east of the Mississippi. He was 69 years of age at the time of his death.

Chief Deasy was an early and consistant contributor to FIRE ENGINEERING and his pungent, forceful observations on practical firemanship and his unique philosophy of life, endeared him to a wide following.

His health finally forced him to devote his winters to Florida but he returned summers to his home in Greene County where he kept in touch with his friends in the fire service.

Chief Deasy was a member of the International Association of Fire Chiefs and honorary life member of the Fire Chiefs Emergency Plan of Westchester County.

He leaves a wife, two brothers—one of whom, Dan, is Deputy Chief in Charge, Borough of Brooklyn and Queens, New York Fire Department.

John J. Towey Deceased

John J. Towey, 82, former Chief of the Newark, N. J., Fire Department, and a past president of the International Association, died Aug. 26, 1954, at his home in Newark.

Chief Towey, who was widely known and respected, retired from active service in 1937. He joined the Newark Fire Department March 15, 1897. He was promoted to lieutenant in 1901, became a captain in 1905, a battalion chief the following year, and was made deputy chief in 1912. He was appointed chief on June 19, 1925.

In 1934 he was elected president of the International Association of Fire Chiefs at its Milwaukee, Wis., Conference.

Upon his retirement from the department he had headed for 22 years, Chief Towey issued a statement expressing regret because of his retirement and thanking those who had cooperated with him over a lifetime of service. On April 8, 1937, a parade of the Newark Fire Department was held in his honor and many visiting chiefs participated in the ceremony.

Surviving are his wife, a son and daughter and a brother and sister.

Former Chief Cornoyer Dies

Lawrence C. Cornoyer, former chief of the St. Louis Fire Department, died in St. Louis Aug. 5th after a lengthy illness. He was 67 years old.

Cornoyer became chief in 1938 after 34 years service in the department. He worked up from the ranks and was known in the service as the "fighting fireman." He resigned in 1941 to become chief inspector of plant protection in the St. Louis Ordnance District of the War Department. He was a member of a number of fire service organizations.

Surviving are his wife, two brothers and two sisters.

Shower Saves Acid Burned Chemist

A chemist in the L.A. coroner's office was saved from death by acid burns when a co-worker acted quickly to give him a shower bath.

The chemist was preparing a chemical test on a body when nitric acid exploded, spattering him. The assistant saw the acid eating the chemist's shirt and shoved him under a shower.

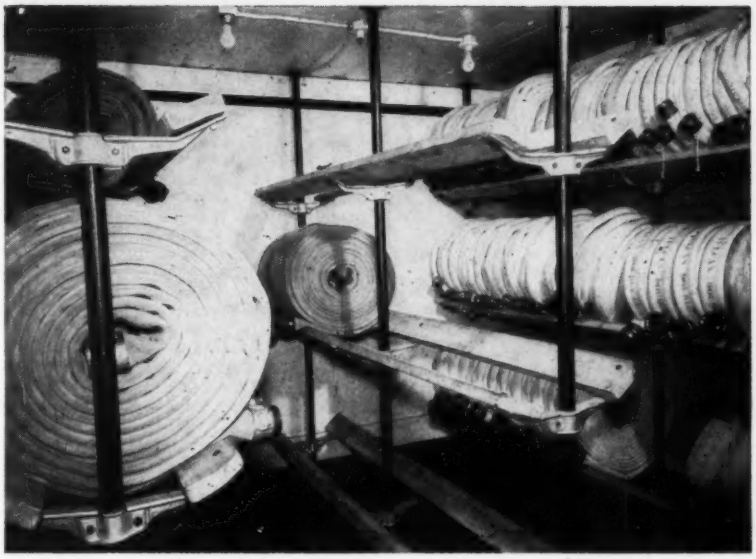

Photo Courtesy Wichita Fire Station No. 1

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FEATURES

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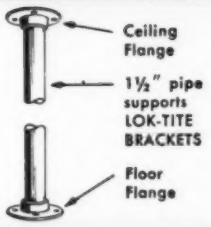
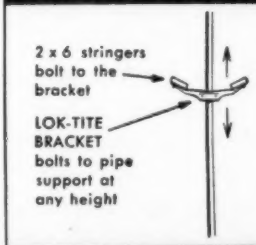


EASY ADJUSTMENT



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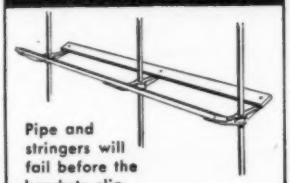

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MIGHTY few station houses have all the room they need for good housekeeping. Lok-Tite brackets help solve the hose storage problem by allowing ample ventilation and access in limited storage space.

Build your own racks with new or used materials. Design your own storage to take full advantage of the space available. Have ample room for fittings inspection and ventilation.

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Persons in the News

Ferren Succeeds Chief Connelly

Francis R. Ferren, a fireman for 41 years, became the new chief of the Syracuse, N. Y., Fire Department on Aug. 5th. He succeeds retiring Chief William J. Connelly, another veteran of the department.

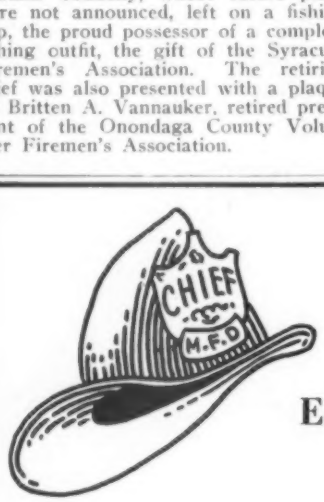
Chief Connelly, whose future plans were not announced, left on a fishing trip, the proud possessor of a complete fishing outfit, the gift of the Syracuse Firemen's Association. The retiring chief was also presented with a plaque by Britten A. Vannauker, retired president of the Onondaga County Volunteer Firemen's Association.

The presentations were made at the swearing-in ceremony in Mayor Mead's office. The new chief also received a gift in the form of a desk set and two pens from the Firemen's Association.

Ferren joined the department July 20, 1914. He was appointed lieutenant in 1921, captain in 1927 and district chief in 1932. In 1945 he was promoted to second deputy chief and advanced to first deputy in 1947, a position he held until he was advanced to chief.

In 1944 he was awarded the Francis Hendrick medal for meritorious service.

In the same ceremony, Harry J. Coon, a member of the department since 1919, was sworn in as first deputy chief. He was made lieutenant in 1927, promoted to captain in 1932, and district chief in 1940. In 1947 he was made third deputy chief and later that year, second deputy.



Chief—

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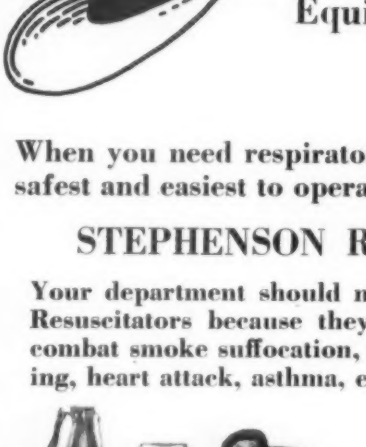

Hundreds of your fellow chiefs throughout the country have learned from experience that Stephenson Resuscitators are the most efficient, simplest to operate and do most for the patient.

Write today for demonstration without obligation or send for FREE booklet F-109 which gives you complete information.

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Newcomb Takes Post at Henderson

Battalion Chief Wallace Newcomb of the Los Angeles Fire Department has been named as the new fire chief, fire marshal, and assistant administrative officer of Henderson, Nev.

In announcing acceptance of the posts of the recently-incorporated city eight miles west of the gambling casinos of fabulous Las Vegas, Chief Newcomb said he would retire immediately from the L.A.F.D.

L.A.F.D. Photo

Chief Wallace Newcomb

The 53-year-old Newcomb has been head of the famed L.A.F.D. Mountain Patrol and is one of the senior members of the department. He was appointed an emergency fireman in July, 1923, and received a regular appointment two months later. He has been a chief officer since April, 1944.

Henderson is the third largest city in Nevada, according to Newcomb, and was originally developed by the government during the last war to provide housing for a nearby magnesium plant. The community is only 10 miles east of Boulder City and Hoover Dam.

CLIFF DEKTAR.

Buffalo Fire Head Boomed for Race

Fire Commissioner and chief, Charles W. Halloran, of Buffalo, N. Y., who once was president of the Buffalo Federation of Labor, is being pushed for lieutenant governor on the Democratic ticket by New York labor groups.

Kreps Succeeds Downing

Fire Chief Charles Downing, 62, resigned as head of the Grand Junction, Colo., Fire Department after 34 years of service. He is succeeded by Chief Mechanic Frank E. Kreps who joined the organization as part-time fireman in 1935.

Chief Downing joined the department in 1919 and, after nine years as assistant chief, he was named chief in 1931. During the spectacular explosion of a munitions train in Grand Junction June 28, 1943, Chief Downing's right arm was partly blown off. He retired a few months later. He was called back to duty in 1944 because of dissention in

the department and because of a threat of insurance companies to increase rates in the city.

The new chief is a former president of the Grand Mesa Ski Club.

Waldren Heads Canada Frigidaire Fire Department

P. C. Waldren, K.P.M., has succeeded Ken. Packenbrook as chief of fire protection at Frigidaire Products of Canada, Toronto. Chief Waldren recently came to the Dominion from London, England, where he served as a Station Officer in the London Fire Brigade, and subsequently as a Company Officer in the National Fire Service during war years.

The new chief was awarded the Kings Police and Fire Brigade medal in 1936 for gallantry.

Conn. Chiefs Elect

Chief Thomas Donnelly, of the West Hartford, Conn., Fire Department, was elected President of the Connecticut Fire Chiefs Association, Inc., at the annual meeting of that group in West Hartford, Aug. 25. Other officers chosen include former Chief Warren Hall, of Cheshire, First Vice President; Chief Howard Reynolds, of Eagleville, Second Vice President; Deputy Chief Daniel Hazard, of West Haven, Secretary-Treasurer. The Board of Directors named are Chief Lea Hutchinson, Simsbury; Chief Albert Martin, Willimantic; Chief Sylvester E. Jennings, Bridgeport; Chief James Grote, Chester; Chief Thurston Howard, Waterford; and Chief Charles Chapman, of Middlebury.

June Fire Losses

Estimated fire losses in the United States during June amounted to $65,533,000, it was reported by the National Board of Fire Underwriters.

According to Lewis A. Vincent, NBFU's general manager, this $65,533,000 loss represents a decrease of 3.1 per cent from losses of $67,644,000 reported for June, 1953, and an increase of 5.2 per cent over losses of $62,282,000 for May, 1954.

Losses for the first six months of 1954 now total $455,990,000 an increase of 5.5 per cent over the first six months of 1953, when they amounted to $432,081,000.

These estimated insured losses include an allowance for uninsured and unreported losses.

New York Heavy on Matching Funds

The State of New York has lost no opportunities to take advantage of the matching fund program of the Federal Civil Defense Administration.

According to a report from the Bureau of Fire, Division of Safety, for the fiscal year ending June 30, 1954, 89 units of government in the State benefited from the matching fund program for the development of radio in the fire service. This was independent of funds used for purchase of fire apparatus and other equipment.

A total of $236,198.42 was approved by the Federal Government for the development of communications alone.

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The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

Believe It or Not—Hydrant Ablaze

From Lancaster, Ohio, comes this "Ripley," sent by several of the faithful.

A fire hydrant caught fire in that city on August 9—no foolin!

Firemen said a passing pedestrian striking a match on the hydrant ignited natural gas fumes which had seeped into the 'plug'.

After putting out the fire, firemen placed a "No Smoking" sign on the water pipe.

Howja like that!

* * *

Firemen Burn Over Water Deal

Stillwater, Okla., firemen sort of "raised the roof" and did a slow burn, over being charged for ice water for the men battling a roof fire on the roof of Smith's Photo Studio, on Main street, on June 23rd last.

The fire, cause unknown, gutted the attic, part of the roof and west wall of the second story addition to the shop, causing an estimated $10,000 loss. Firemen figure that $2,000 of the loss was caused by smoke and water—not the kind you drink.

A fire department spokesman said a drug store charged 15-cents for paper containers to carry water to men working in the 100-degree heat at the photo studio.

On the other hand, the fire department official said, a local creamery provided 10 gallons of drinking water free to the thirsty fire fighters.

Thanks Richard Giles

* * *

Hot Off the Tape

In Utica, N. Y., four children, waiting for a circus parade on a street corner, a woman and a circus clown, were showered with burning kerosene August 2. Flaming fuel reportedly had gushed from a lighted street flare run over by a tractor-trailer. Injuries proved not serious. . . . Item of note: the chief of the St. Francis, Wis., Fire Department is H. W. Burnhouse. . . . The Memphis *Commercial Appeal* recently came up with this on its "100-years-ago" column: "Savannah, Ga.—Members of the fire department here are paid 12 cents an hour, but only when they actually are fighting a fire. In addition, when an alarm is sounded, the first man to reach the fire engine house is given a bonus of $1 and the second and third men 50 cents each." . . . Firemen and attendants rescued 45 patients from a fire that raged through a 3-story wooden convalescent hospital, July 21. No injuries as top stories of Bloomfield Hospital in Pontiac's suburban Bloomfield Township, Mich., burned. . . . Speaking of ventilation: a short circuit started a fire July 21 in a show window of Bamberger's Department Store, Newark, N. J. Half a dozen manikins were tossed to the street by firemen as the blaze spread to two other windows. Reversed fans, clearing the smoke, enabled shopping to continue. . . . Vamps of the Plainsboro Fire Department, near Princeton Jet, N. J., missed a fast-traveling blaze August 6. Called to the Pennsylvania Station, the Plainsboro lads waited for a New York-bound train which was reported by state police to be afire. But the train roared through the station without even hesitating. Later, the volunteers learned the train crew had doused the blaze before the train reached Princeton Jct., where it was not scheduled to stop. . . . In Louisville, Ky., two young sisters burned to death in their bedroom when lightning set their two-story home afire. . . . Out Ann Arbor, Mich., way 300 of Michigan's best fire fighters were registered for the 24th annual state Fire College when someone smelled smoke. While scores of firemen stood around, a woman registrar ran up to Jacob H. Hohmann, Jr., assistant fire chief of Bay City, Mich., and put out the fire. His shirt was smoldering from a cigaret spark! . . . George Brill, of Pottstown, Pa., saw a fire in the kitchen of a neighbor and called the fire department. All volunteer companies, including a service truck and ambulance, roared up in time to see the neighbor's chicken prepared for Sunday dinner. The fire was the singeing of the chicken's pinfeathers. Stuff and nonsense. . . . Gene F. Bailey, 18, was sentenced by a Covington, Ky., Judge to write "I will not throw firecrackers at people's feet" 5,000 times! . . . Phillip Partridge, 43, of Hillboro, Ohio, was held for grand jury action July 7 on charges of setting fire to a school attended by Negroes because he wanted to force authorities to end segregation. Partridge, an engineer, said he wanted to send 40 to 50 Negro children to school with white children immediately. Damage to the school was $5,000. . . . In Boston, Mass., an apartment house owner protested in court July 7 that building a fire escape would "just make it that much easier for crooks" and suggested a tree outside the building a substitute. A municipal court judge found the defendant guilty of failing to provide a suitable fire exit. . . . High Point, N. C., authorities hunted a firebug on July 13 after separate fires burned out three midtown industrial areas, injuring 16 firemen. Loss in the furniture manufacturing city of 40,000 was estimated at $1 million. (Thanks J. Kearns.) . . . About 80 Massachusetts National Guardsmen ripped off their shirts July 19 to beat out a wind-swept brush fire started by a 40-lb. charge of high explosives. Fire was held to an area about 70 yards square. Deponent saith not what happened to shirts. . . . The works were gummed up considerably, at a candy company out in Louisville, Ky., July 30 when an estimated $200,000 worth of fudge and other goodies were converted into a gooey mass by water which fire fighters were forced to use in a brief but spectacular blaze. . . . On August 4, lightning turned Francis Einarson, 26, into a human firebrand at International Falls, Minn., but he escaped with only a slightly burned hand and a stung arm. A streak of flame shot six feet out of his head and in all directions, witnesses said. He is operator of the municipal airport and was on the wing of a plane at the time. . . . Oliver Bryson, 65, was burned to death on July 23 fighting a grass fire at

"Two Century Farm," Warwick Township, south of Doylestown, Pa. He was apparently overcome by smoke and collapsed behind a barn at the edge of the fire. . . . The Kansas City, Mo., Fire Department gave up its plans to burn some houses July 19 for practice because the weather was too hot. Firemen were given job of burning 11 houses to clear right-of-way for a new street and were to get some good practice in the clearing. They burned two, and Fire Director Louis Spandle said that was enough —until the weather cools. The temperature climbed to 111 on the 18th. . . . Civic duty is paramount in the home of Mayor Phil Van Every of Charlotte, N. C. When construction workers burning scrap found flames getting out of control, they saw a little old lady come running across the street, dragging 300 feet of garden hose. Aided by grandchildren, the mayor's mother, Mrs. S. A. Van Emery, put out the fire before fire apparatus arrived. . . . Unable to extinguish a smoldering fire in 250 bales of hay at Denver Union Stockyards, weary firemen carted the whole business off to the nearby city dump the night of July 15 and let'er burn. . . . A burglar found that a shiny brass sliding pole in a Columbus, Ohio, firehouse a ready means of exit. Fire Lieutenant Thomas Curran, so the story goes, awakened and saw a man at the foot of his bed. The lieutenant yelled and the man quickly slid the pole. A check of personal belongings in the station showed the intruder had ransacked the pockets of sleeping firemen, stealing about $76. We allus thought sneak thieves worked when a company was out of quarters. (Thanks to the several who submitted this item.) . . . On August 20, the Detroit Fire Department picked "Miss Flame" from among a small army of lovelies, "unmarried and at least 18." . . . Branford, Fla. (pop. 600), had a fire truck in July but no firemen. Seems the volunteer department, about 20 strong, had a charity baseball game with the Woodmen of the World and took the truck through town, blowing the siren to advertise the affair. Hizzoner Mayor Frank Norris told Fire Chief Witt Stanley to take the truck back to the station and not use it again unless there was a fire. After the game, the vamps took the truck back—and resigned in a body. . . . Residents of Melrose, N. J., kicked about the location of a fire siren on Oak street because it made too much noise. John Andrejewski, president of Melrose Hose Company, said installation of the new siren increased response to alarms from 50% of company's membership to 90% and present location is "ideal spot." Fire Chief Russell Zach says it is "useless to think of putting siren where there are no firemen." The Borough Council will "look into the matter." . . . Fire fighting equipment ranging from ancient hand-drawn apparatus to latest "atomic-age" pumpers were displayed by the New York Fire Department at Pier A, the Battery, as a feature of the Fire Fighters Band Concert, given noondays at the Battery. More than 150 bandsmen and vocalist members of the NYFD Band and Glee Club and of the N. Y. Festival Band, Local 802, AFL, took part in the outdoor concert. The ancient relics were trucked to the scene from the Fire Department's Museum at 46-35 35th street, Long Island. We s'pect Capt. Clarence Meek, historian of the Department, had a hand in it.

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What's Burning

THE following list includes fires of $10,000 and over in the United States and Canada for the month of August, 1954.

Month Ending August 31, 1954

Flagstaff, Ariz.—Cheshire Motors Co., plant destroyed.
North Little Rock, Ark.—W. R. Rhodes & Sons, Inc., millwork plant destroyed.
El Cerrito, Cal.—Wagon Wheel apartments destroyed.
Eureka, Cal.—Ranch house of A. Wylie Mather and costly furnishings, destroyed.
Long Beach, Cal.—Regal Furniture Co. factory damaged. Explosion in spray room.
Modesto, Cal.—Modesto Television Repair and Appliance Store, destroyed.
Modesto, Cal.—Hammond Lumber Co.'s planing mill destroyed.
San Francisco, Cal.—Chief Petty Officers' Club at Treasure Island Navy Base, damaged.
Soledad, Cal.—Parasio Springs Hotel destroyed.
Willits, Cal.—Generator and Storage building at San Francisco Boys Club Camp Marwedel, destroyed. Faulty wiring.
Bristol, Conn.—Storage barn on Lake avenue, housing large supplies of corrugated cartons and magnetic steel owned by Superior Electric Co., destroyed.
Laurel, Dela.—200 acres of timberland on tracts owned by A. J. Timmond and H. H. Dickerson, two miles west, destroyed.
Brunswick, Ga.—Building housing Glynn County's Negro Senior High School, destroyed.
Duluth, Ga.—Four warehouse buildings and seven railroad shanty cars, destroyed.
Louisville, Ga.—Jefferson Shirt Corp. plant, destroyed.
Macon, Ga.—Bateman Co., Inc., garage and storage building destroyed. Lightning.
Coeur d'Alene, Ida.—Fifteen-room dwelling of Harlan I. Peyton destroyed. Faulty furnace.
Weiser, Ida.—Jaekel vegetables warehouse destroyed.
Pekin, Ill.—90,000 barrels of whiskey, warehouse B, C, and E, and export bottling house at American Distilling Co., destroyed.
West Frankfort, Ill.—Lane building housing five business establishments in downtown business district and Jacobs insurance building also housing a barber shop, destroyed.
Anderson, Ind.—Wann Cannery and office at west edge of Frankton, destroyed.
Kansas City, Kans.—Building formerly used as a beef freezing house at the old Wilson & Co. packing plant, now being used to store empty steel containers for oil and grease by Battenfeld Grease and Oil Co., damaged.
Lawrence, Kans.—Sterling Furniture Co., damaged.
Allensville, Ky.—Allensville Grain Co. feed cleaning plant, destroyed.
Harvey, La.—The Gay Theatre destroyed.
East Cumberland, Md.—Building occupied by Fort Cumberland Motors, Inc. and Dennison's paint contracting firm, destroyed.
Laurel, Md.—Barn and feed storage building on Clifford Y. Stephen's farm, destroyed.
Lexington, Md.—Department store, Millison building, destroyed.
Middleton, Md.—Buildings on Edward F. Holter farm destroyed.
Providence, Md.—Robert Mackey's mushroom house, destroyed.
Providence, Md.—Conowingo Paper Mill destroyed.
Beverly, Mass.—Beverly National Bank building which also houses the State Department of Public Works offices, spread next door to Almy dry goods store and Beverly Cooperative Bank and the Cor-Mix Co. sporting goods store and a small department store, heavily damaged.
Boston, Mass.—Town House Restaurant, damaged.
Lowell, Mass.—Lajoie Coal Co.'s offices; Stolpyne grocery store; C-Rich Fruit Juices, Inc.; Sonny's Restaurant; Boston and Maine Railroad trestle, garage and homes, destroyed. Oil tank truck exploded.
Lynn, Mass.—Wooden storage building at A. & S. Snierson Scrap Metal Co., destroyed.
Union City, Mich.—Six buildings on Edwin Carpenter farm, three miles southwest, destroyed.
Paynesville, Minn.—Bresson Implement Co. destroyed.
Canton, Miss.—Sacred Heart High School building destroyed.
Columbia, Miss.—Two dwellings and a pressing shop, destroyed.
Grenada, Miss.—Planing mill of Phillips Lumber Co. destroyed.
Independence, Mo.—Building occupied by Aaron Brooks Hy-Class food store, Clark Barnard pharmacy, Alton Hardware store and apartments, damaged.
Princeton, Mo.—Grocery building and cars on the town square, damaged.
Butte, Mont.—Butte Apartment Hotel, three adjacent business firms, destroyed.
Hamilton, Mont.—Station Motor trucks machinery destroyed. Short circuit.
Kalispell, Mont.—Foys Lake School contents destroyed. Arson.
Kalispell, Mont.—Los Creek Lumber Co. machinery stocks, destroyed. Explosion.
Almonesson, N. J.—Sunset Beach bowling center destroyed.
Eatontown, N. J.—Thorngreen's Restaurant damaged.
Highland Park, N. J.—Two warehouses of Cronk Manufacturing Co. damaged.
Jersey City, N. J.—Truck terminal and twenty-five trucks of All States Freight, Inc., destroyed.
Long Branch, N. J.—Zunmern's Tiny Tot Shop damaged.
Oradell, N. J.—Oradell Bakery, spreading to adjoining Bogin's Novelty Store and Bluefront Cleaners, destroyed.
Sea Bright, N. J.—Sea Bright Yacht Club, destroyed.
West New York, N. J.—Building housing Gefro Supply Co., Walkor Restaurant, Du Barry Shoe Shop, West New York Decorators, Adam Hat Store and Joan Tann jewelry store, damaged.
Cazenovia, N. Y.—Interior of Buyea's, Inc., general store, destroyed.
East Syracuse, N. Y.—Rose, Kimball & Baxter Wholesale warehouse, containing hardware, sporting goods, mill supplies and household and industrial supplies, damaged.
Oceanside, N. Y.—Boosey & Hawkes, music publishing firm, destroyed.
Woodbourne, N. Y.—Main building of Paramount Hotel resort, destroyed.
Fairmont, N. C.—Building housing Jones Transfer Co., two miles out, destroyed.
Greensboro, N. C.—Ralph's Food Palace damaged.
Liberty, N. C.—A & M Cafe, south on U. S. 421, and adjoining grocery-hardware store, destroyed.
North Wilkesboro, N. C.—Oak Furniture Co. plant destroyed.
Raleigh, N. C.—Honeycutt Fruit and Produce Co. destroyed; Seaboard Line freight station and freight cars damaged.

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Glen Ullin, N. D.—Occident Grain Elevator destroyed.
Ironton, Ohio—Building housing market, pattern works shop, television and radio service store and apartments, damaged.
Prague, Okla.—Elevator section of Thompson Mill and elevator building, destroyed.
Klamath Falls, Ore.—W. A. Spangler Lumber Co. plant destroyed.
Lakeview, Ore.—Lakeview Meat Co. destroyed. Defective flue.
Portland, Ore. — Evelyn Crump Apartments antique shop and barber shop, destroyed.
Bustleton, Pa.—Four buildings on Fisher Dairy Farm destroyed.
Levittown, Pa.—Levittown Shopping Center occupied by Suburban Restaurant and an affiliate, the Eastern News Store, Bercel delicatessen and restaurant, damaged.
New Kensington, Pa.—Skyliner supper club destroyed.
Willow Lake, S. Dak.—Farmers Union Grain Terminal Association elevator, destroyed.
Nashville, Tenn.—Henry Abrams building, housing York Hotel, Cutrell Salvate Store and Fourth Avenue Cafe, destroyed; adjoining K. Furniture Store damaged.
Nashville, Tenn.—Whitworth building occupied by Geny florists, damaged.
Katy, Tex.—Tucker Rice Drier destroyed.
McKinney, Tex.—Four dwellings and the manse of the First Christian Church, destroyed; several other dwellings damaged.
Lehi, Utah—Vacant Lehi Elementary School destroyed.
Kettle Falls, Wash.—Snack shop restaurant, Soffas shoe shop, Kettle Falls Butcher Shop, destroyed. Defective wiring.
North Richland, Wash.—Richland drugstore, cafe and tavern damaged.
Omak, Wash.—Omak Bowling Alley, restaurant, apartments, Omak Sporting Goods Co. contents destroyed.
Richfield, Wash.—Bower Lumber Co. destroyed.
Seattle, Wash.—Two main buildings of North Coast Chemical Soap Works, destroyed.
Toppenish, Wash.—Toppenish Ice Cold Storage destroyed.
Vancouver, Wash.—Clark County Lumber Mill damaged.
Parkersburg, W. Va.—Interior of McKinney building destroyed. Broken gas line.
Appleton, Wis.—Unit of Paper Chemistry Institute housing offices, chemical equipment and laboratories, damaged.
Milwaukee, Wis.—Eugene's Sea Food Restaurant in Juneau Hotel, destroyed; hotel above damaged. Grease in hood of broiler caught fire.
Dominion, N. S.—St. Eugene's Roman Catholic Church destroyed.
Belleville, Ont.—Business offices in Front street's three-story East Robertson block occupied by Vanity Fair dance hall, R. E. Kuntze & Sons, Singer Sewing Centre, Bill Cook's cigar store, Doyle's drug store, Dicksen & Son bakery, Duff's drug store and Children's Shop, damaged.
Etobicoke, Ont.—Barn and implement shed on Moses Teggart farm, destroyed.
Kingston, Ont.—Kingston Penitentiary's trade shop destroyed; other buildings damaged.
Montreal, Que.—Hog and sheep stable in Montreal Stockyards, destroyed.
Outremont, Que.—Interior of St. Madeleine Roman Catholic Church destroyed. Spark from a welder's torch.
Val Morin, Que.—Mont Sauvage resort hotel in this Laurentian town, destroyed.

Fire Fighters Combat Muscular Dystrophy

The 85,000 members of the International Association of Fire Fighters, AFL, in convention at Miami, Fla., voted to participate in the November campaign of Muscular Dystrophy Association of America, Inc.

John Redmond, president of the IAFF, said that members in fire companies will aid in raising funds and will work with the more than 125 chapters of MDAA, Inc., throughout the country. The 1,157 locals of the IAFF will stage rallies, using fire apparatus wherever practical, both modern and ancient types.

Muscular dystrophy, which affects over 200,000 persons in the United States—more than two-thirds of them children—is usually fatal. Last year the letter-carriers of the nation spark-plugged the MDAA drive, helping raise more than $3½ million to combat the disease. This year the fire fighters' organization will spearhead the program.

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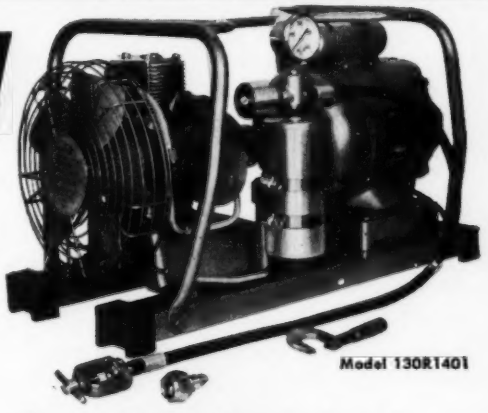

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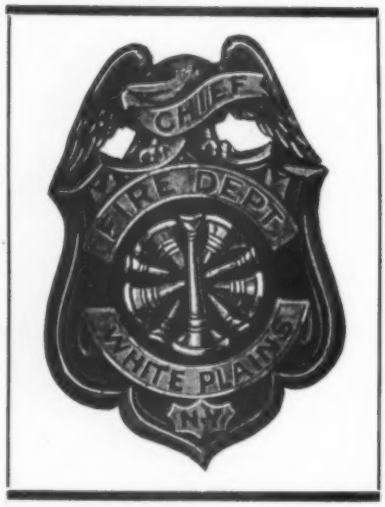

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The ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

METHODS OF MAKING PROMOTIONS

THE greatest single factor in the fire service is manpower. And to personnel in the fire service, the question of promotion is a vital factor.

Changing trends and conditions in the ranks of fire fighters (and in city management), place emphasis on the procedures and methods of advancement.

In order to aid fire chiefs (and fire department administrators) to know what is being done, and how, in fire service personnel promotion, FIRE ENGINEERING has asked a representative cross-section of fire chiefs in large and medium municipalities having paid departments these questions:

1. What method do you believe the best for making promotions in a paid fire department?
   a. By recommendation of the fire chief.
   b. By competitive examination to get the best qualified men for officers?
2. Should the size of the department be considered in deciding the way in which promotions are to be made?

The respondents appear fairly well in agreement that competitive examination (written), conducted by disinterested, responsible authorities, is better than by recommendation of the fire chief. A few participants, less than one-fifth of respondents, would like to see the entire matter left to the chief. A number of others, who believe in civil service competitive examination, would like to see room for inclusion of recommendations of the head of the department, in making the final selections. This is particularly true when it comes to picking top-ranking officers. Thus, a number point out that the fire chief should be allowed some leeway to select from among say the three topmost contenders.

There is general agreement that civil service examinations are preferable in establishing qualifications for promotion.

Finally, from the replies thus far received, the size of the city, and/or fire department apparently has no direct bearing on whether promotion should be by examination or appointment.

Readers are invited to participate in this discussion which will be continued in the October issue. Address replies to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Discussion of the Topic

Albert W. Fisher, Chief, Bureau of Fire, Johnstown, Pa.: There can be no question that a competitive examination is the most effective means of choosing men for promotion in a paid fire department or in any other profession. Of course, the examination should cover practically every important phase of fire fighting and its related duties.

However, recommendations by the chief and other officers should play a role in choosing qualified men. Length of service, all-around knowledge of the profession and a good past record of horse sense application in emergencies are requisites that should be given proper attention. This policy would make it difficult for a sharp bookworm, possibly with very little service or experience, but all primed for a written examination, to be rated higher than a better qualified applicant for a position of leadership.

Size of a department is a factor to be considered in making promotions. In a large department, a chief's recommendation would depend to a great extent upon the opinion of subordinate officers. In addition, a large department may use officers in a specialized field of protection or prevention and thus all-around knowledge of fire fighting would not necessarily

HERE ARE THE QUESTIONS

1. **What method do you believe the best for making promotions in a paid fire department?**
   a. **By recommendation of the Chief?**
   b. **By competitive examination —to get the best qualified men for officers?**
2. **Should the size of the department be considered in deciding the way in which promotions are to be made?**

play as important a role as in the selection of officer material in a small department. Therefore, it is my opinion that more consideration should be given to the competitive examination in the larger departments.

Walter L. Hydaker, Chief, Lima, Ohio: I believe that promotion in the fire department should be based on both a competitive examination (75 per cent) and the recommendation of the chief (25 per cent).

In explanation of my suggested weights for promotional examinations, I would like to state that I sincerely believe in the civil service system of our state, but like all systems it is not a perfect one. I feel that the chief of a department should have a larger voice in the selection of his officers, and this is especially true when you have a member of your department who has those abilities that are so necessary in the making of a good officer, but who for various reasons cannot express himself clearly in a written competitive examination. In this event, the chief should, by his recommendation, be able to help select the applicant that is best fitted for the position.

Thomas Collins, Chief, New Haven, Conn.: Here in New Haven, a competitive civil service examination in written form is given and the chief is called upon to furnish an efficiency rating for each applicant.

The written examination counts 55 per cent and the efficiency rating is 45 per cent of the total mark. Efficiency ratings are based on the applicant's knowledge, ability and initiative.

George T. Morgan, Chief, Wilmington, Dela.: The chief engineer of any department is held strictly responsible for the performance and efficiency of his department by the directors or mayor of the city, and I emphatically believe that promotions in the Fire Bureau should come from his recommendations, as he should know and should give an honest recommendation, because of the fact that he is held responsible.

Lester R. Schick, Chief, Davenport, Ia.: Probably the most controversial matter in fire department administration is that pertaining to promotions within the ranks. I have yet to find a system which, in my opinion, is 100 per cent satisfactory to all concerned. I feel that both a competitive examination and recommendation by the fire chief should be considered. I believe the program we have in our department has merit, although it is not 100 per cent agreeable to the membership at large.

I feel that competitive examinations are a requisite. Questions, insofar as possible should be made up by members of the department from study material provided during study and drill periods. We have used such a program with excellent results for the past four years.

I feel that there are matters that must be considered in promotion that cannot be determined by examination, for example, an individual's attitude, application to his work and department, his loyalty to the department, chief officers and programs established for department operation. After consultation with the two assistant chiefs and the chief, all our promotions are made, with due respect to

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Bronze Seat Ring — Straight threads for easy removal.

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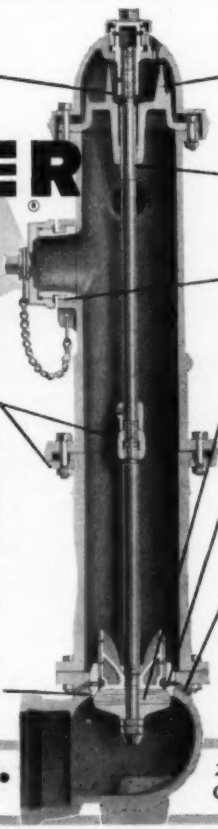

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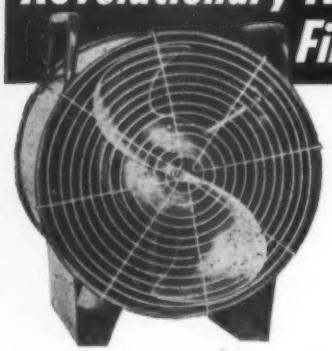

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●The secret of Super Vacuum is the patented fan blade. Conventional fans chop the air and push it back. Whereas the Super Vacuum fan blade is a perfect spiral air screw which creates a partial vacuum, suction is created over the entire face of the blade and the air or smoke is discharged in a high velocity spiral. There are no dead spots—that is why Super Vacuum outperforms other fans twice its size.

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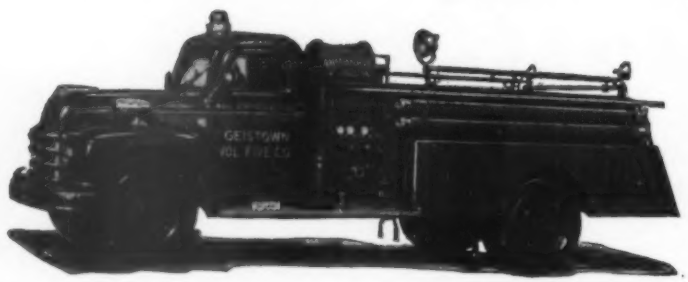
Champion Fire Apparatus



A highly efficient pumper apparatus with the Champion Three Stage Centrifugal Pump powered by Diamond T. The Pump is the Type SH750 which delivers 750 gallon Underwriter performance plus 60 gallons per minute at 850 lbs. for high pressure fog.

Or this Darley Apparatus is also available in Underwriter capacities of 600 GPM and 500 GPM. Modern commercial truck motors have adequate power for either 750, 600 or 500 GPM pumps.

NEW 1954 BOOKLET
CHAMPION FIRE TRUCKS and FIRE PUMPS

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competitive grades, seniority, etc.

Without a doubt the size of the department has a bearing on the manner in which promotions are made. The larger the department the less opportunity the chief of said department has of contacting, observing and determining the ability of the individual to warrant promotion. Therefore it becomes necessary to include more individuals with closer contacts with the rank and file of the membership when promotions are considered. I am a firm opponent of one individual establishing dictatorial powers of making promotions. I feel that personalities rather than merit become the determining factor in making promotions under such a program.

F. E. Wood, Chief, Wichita, Kans.: We use the competitive examination policy for promotions. In my opinion, better qualified men are acquired under such a procedure. However, smaller departments where the chief may have full knowledge of the services performed and progress being made by each employee under his direction, would not necessarily justify formal written examination procedures.

E. L. Surfus, Chief, Eugene, Ore.: We hold a competitive examination and then the appointment is made by the chief from the top three men. This system shows who are best qualified for the position, yet gives the chief a chance to select the man whom he thinks can best fill the position.

We believe, that regardless of size of the department, promotion should be based on a system that is dependent on merit.

W. J. Lewis, Chief, Norfolk, Va.: Our present system has proven to be very satisfactory and promotions are made in the following manner: A competitive examination is held and a list is established according to grades from which all promotions are made. Applicants for captaincy are required to have completed at least two years as fireman 1/c before being eligible to take the competitive examination. All other promotions, except fire chief, are made under the same system. As vacancies occur, a requisition is made to the Personnel Bureau who in turn submits to the fire chief the five highest standing eligibles from which he has the authority to select the most suitable man for that particular vacancy, all of which eligibles are subject to approval of the Public Safety Director and the City Manager. This eligible list stands for a period of two years. Prior to the expiration of the two periods, a new examination is held to establish new lists for forthcoming two years.

In my opinion, the size of any fire department should have considerable bearing on the system and also whether or not the particular department is under civil service.

Michael H. Lotz, Chief Engineer, Baltimore, Md.: I believe the best method for making promotions in a fire department is by competitive examination. This not only helps maintain morale, but provides an incentive for members of the department to advance to higher grades by means of study and application to duty.

Promotions by recommendation of the chief may have some advantages in a small size department where the chief has definite knowledge of the

qualifications of every member of his department; otherwise the only fair and equitable method is by competitive examinations.

M. H. Sutton, Chief, Washington, D. C.: In this department, we employ competitive examinations up to and including the rank of captain. Above the rank of captain, promotions are usually based on seniority in grade, provided other prerequisites are evident.

In a department as large as ours, it appears that competitive promotions are preferable. However, in smaller departments where it is possible to more closely observe the abilities of the various members and evaluate their potentials for the next highest grade, I believe that selection and promotion should be based upon the recommendation of the fire chief.

C. C. Styron, Chief Atlanta, Ga.: I consider the best method of maknig promotions in a paid fire department to be by competitive examinations.

We have an examining board composed of the City Personnel Director, the Chief, Assistant Chief, a Captain and a Lieutenant, who make the policies for the department. Examinations are conducted and an eligible list established by grades. Promotions are made from the list by recommendation of the chief and vote of the fire board.

The size of the department is important in determining the method used for promotions. In a large department, a competitive examination gives each man an equal opportunity for promotion and makes it possible to promote the best qualified officers.

Allie A. Feldman, Chief, Denver, Colo.: I believe that competitive examinations bring about a good average of

L.A. County F.D. Photo

Go West Young Man!

Horace Greeley was no slouch when he importuned the young and ambitious to go out into the wide open spaces. Now, the west is settled—but a definite objective still remains—in the person of lovely Norma Yriarte recently elected queen of the County Fire Department Firemen's Ball, held at Santa Anita Race Track, Arcadia. If this picture doesn't start a stampede for the West Coast, it isn't the fault of Los Angeles County Fire Chief Keith E. Klinger, who is shown posed with this example of feminine pulchritude! Miss Yriarte is Chief Klinger's secretary.

We've always heard about the progressiveness of the L.A. County Fire Department. Now we begin to get a faint idea of the why's and wherefores! (THANKS CLIFF DEKTAR.)

CAIRNS FIRE HELMETS

LEATHER
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PLASTIC

REGULATION
AND
DROP BRIM

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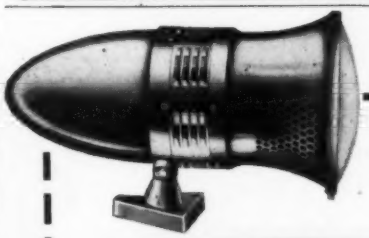

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qualified men for officers. However, the chief should have the right of selection from the eligible list. That is, he can recommend the promotion of any one, two or even all three from each three. We had this privilege until a few years ago and found it very successful.

I do not think that the size of the department should decide the way in which promotions are made.

P. Du Paul, Chief, Vancouver, Wash.: I believe that competitive examinations are the best way to obtain good officers. This method gets away from any favoritism that might enter the appointments. It also creates incentive to study and gives the candidate a feeling that he has been rewarded for his efforts. It also improves morale. This method, I feel, is the best way to get officer material in any size department.

B. B. Wilkinson, Acting Chief, Phoenix, Ariz.: I believe the best method for making promotions is by competitive examination. By competition, an incentive is created to cause the men to study, drill, train and apply themselves more diligently, knowing that the man getting the highest grade, with the best performance rating, will be promoted and not a "favorite son." Naturally, this would lead to better trained men throughout the department, and our future chief is a member of this group at present.

Edward Blohm, Chief, Detroit, Mich.: In my opinion, neither of the suggested methods are the best. A combination of the two has proven over the years, at least as far as Detroit is concerned that line seniority, qualifying examination on purely fire department matters, plus favorable recommendation by a Board of Chiefs as to the individual ability of the candidate, probably come closer to an all-around, ideal, fair, effective and efficient manner of making promotions than any other I have been privileged to survey.

This method builds morale, respect and discipline and also eliminates undue favoritism or political expediency. Most of all, however, it determines qualifications of future officers on a basis that eliminates the objectionable phases of promotions based solely on competitive examination regardless of firemanship, leadership and the courage demanded in officer candidates. By the same token, the outright promotion of a member solely on the basis of the recommendation of the chief of department seems to have many loopholes that could easily work to the disadvantage of both the employee and the administration.

I sincerely believe an ideal promotional system should incorporate the following phases:

(a) Line seniority (based on unbroken length of service).

(b) Qualifying examination (based on written, oral and physical examination with questions restricted to those matters that every efficient fire officer should know in order to do his job).

(c) Recommendation of either the Board of Chiefs, or, in the case of small departments, the chief (during the years prior to eligibility for promotional consideration, each member should be rotated from engine, ladder, high pressure and squad companies, as acting officer, and in different districts in order to broaden his experience and

permit the chiefs to observe his capabilities).

J. W. Lobue, Chief, Houston, Tex.: In 1947, the State of Texas passed a Firemen's and Policemen's Civil Service Law providing that all promotions shall be made by giving competitive written examinations, allowing 60 points for the examination, one point for each year of service up to ten years and thirty points efficiency based on a performance rating sheet, whereby each man is graded on his performance twice a year by his immediate superior officer.

We believe that this is the best method for finding the best qualified men for promotion. We are fully cognizant of the fact that written examinations will not always provide you with the best qualified men for a certain position, therefore, the allowance for a performance rating.

We believe that in order to pick the best man for a position, the best policy would be for the fire chief to hold a conference with his subordinate officers and select the man on a strictly performance basis, weighing all factors involved, provided personalities and political influence could be eliminated. But we also believe that a large percentage of administrators would let these factors overshadow their better judgment.

Our State Civil Service Law also provides that the fire chief may choose one of the top three on the eligibility list for a promotion. It also provides that each promotion shall carry a six months probationary period in which an officer may be demoted for incapability without recourse to civil service hearing.

Since the inauguration of our State Civil Service Law, we have noticed a marked improvement in the morale and efficiency of the men in all ranks and find that the men studying for promotional examinations automatically improve their knowledge and capabilities for their job.

Air Crash

(*Continued from page* 741)

water hole 800 feet away. The Willimantic Fire Department, 20 miles to the north, also alerted its foam unit but its aid was not required, although four men from that department reported to the fire and aided local forces.

Because of the impossibility of immediately securing accurate information concerning the passengers, including possible victims and those that had escaped, as the firemen were able to advance into the plane with fog and foam nozzles, a close watch was kept to detect any bodies that might be lying in the wreckage. Actually, it wasn't until several hours had elapsed that it was known for a certainty that no one was still trapped.

Mail and Express a Problem

Overhauling soon disclosed that the compartment containing the mail and express in the belly of the plane would be the problem as this area was red hot and fears were held that as the compartment was opened it would burst into flames and the contents be destroyed.

It was at this stage that a bit of equipment carried by the Griswold Company was put to excellent use. This

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VOLUME *and* PRESSURE *are* both vital in controlling or stopping disastrous fires . . . the kind you have to fight all too often in mid-winter.

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A new, better, APPARATUS PUMP!

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was a "hydro-blender" which develops wetter water.

A hole was punched into the compartment large enough to insert a 1½-in. fog nozzle and the treated water was played on the smoldering mail bags for a few moments, and then larger holes and more fog lines was advanced into it with the result that 90% of the mail was ultimately delivered. When it is realized that over 24,000 pieces of mail were in the bags, this operation of the men and equipment may be considered outstanding. All of the express matter, consisting of many valuable packages, were saved 100% by removing them hand-to-hand in a human chain of firemen to salvage covers laid on the muddy ground outside the plane.

The pumpers operated steadily for two hours, using water from water holes and nearby swamps. The men remained at the scene for six hours overhauling and salvaging. All of the apparatus units had front-mounted 500 G.P.M. pumps except the Norwich unit, which is a conventional type heavy duty fire truck.

Front-mount units are reported quite popular with fire companies in the affected area and they proved their worth at this operation as, according to Chief Kaufmann, it would have been impossible for side suction pumps to set up at the water holes. Preston's two pieces have 1,000-gallon booster tanks and Voluntown and Grisworld trucks have 500 tanks.

For the most part, low pressure fog was employed, although Preston used high pressure when performing rescue work. All the water in the water holes and brooks was used up very shortly and pumping was undertaken from booster tanks, water being supplied by Preston No. 2 apparatus set up in a swamp some distance away. Voluntown and Griswold used Pacific Marine portable pumps at a drainage ditch 800 feet from the fire. Except for the 2½-in. foam line, all hose lines were 1½-in. water fog.

The Lessons Learned

The fire posed a number of problems for the fire forces involved, and the study of operations offers considerable food for thought, particularly for municipal firemen, performing rescue and fire extinguishing in rural areas.

According to Chief Kaufmann, it was found that the mutual aid system operated smoothly and kept apparatus, that was not needed, from responding (this situation might well be contrasted with the events at the Elizabeth, N. J., air crashes). The hours spent on county's mutual aid planning were not wasted. It has been decided, as a result of this experience, not to change the present make-up, or operation.

The training that the men had received at their drills and at the New Haven and Willimantic Fire Schools stood them in good stand during the explosions of the gas tanks, and the ensuing magnesium flare-ups.

The men know what to expect and when the blasts came they took the precautions that were taught them at school. The oil and magnesium fires, on which these men trained at New Haven, paid dividends at this incident. An observer remarked that it looked to him as if all the firemen on the scene were from one department. In this he was almost correct as the men who served have attended drills regularly and have at least once a year participated in a drill that took in all three counties. Chief Kaufmann asks "How else could firemen who had never seen a fire of this type do such good work if it was not for training?"

Fire department radio proved indispensable. Besides doing its part for the fire forces in response and in operational

U.S.A.F. Photo

Hickam Field Gets Fire Prevention Award

Hickam Air Force Base, Honolulu, was the grand award winner of the 1953 N.F.P.A. Fire Prevention Week contest. Hickam AFB is headquarters of Military Air Transport Service (MATS) Pacific Division. Brig. Gen. Stanley T. Wray of the office of the assistant chief of staff, Installations, Air Force Headquarters, made the presentation on behalf of the Chief of Staff, USAF. The award to Hickam is the first time an overseas base took top position in the worldwide contest since Air Force participation four years ago. During these four years MATS bases have consistently placed among the first 15.

John W. Bridges (second from left), Chief, Fire and Crash Rescue Branch, Hq., MATS, holds Fire Prevention Award Plaque. Left to right: Gifford T. Cook, Chief, Fire and Crash Rescue Branch, USAF, and formerly Manager, International Association of Fire Chiefs; Mr. Bridges; Lt. Gen. Joseph Smith, Commander, MATS; Brig. Gen. Stanley T. Wray, Director of Facilities Support, A/CS, Installations, USAF; Brig. Gen. Don O. Darrow, D/CS, Materiel, MATS; Col. Paul K. Walker, Directorate of Facilities Support, A/CS, Installations, USAF; and Col. Wayne M. Beumeler, Chief, Installations-Engineering Division, D/CS, Materiel, MATS.

tasks, it was of great help in controlling the ambulances and doctors that shuttled back and forth from Backus Hospital in Norwich where patients were taken.

One other problem, which turned up at this fire and has not been fully resolved, left the officer in charge wondering if he had been right in authorizing the removal of the mail and valuables from the plane. This was a foreign plane that had not as yet landed on American soil; the mail had not been received by the Post Office Department; the custom service had not examined the baggage or express; the immigration authorities had not checked the passengers, and on top of that, there was the powerful C.A.A., which does not want anything touched at a plane disaster until its personnel arrives. Should he (the C.O.) stand aside and wait for these authorities to arrive and allow the plane and contents to be destroyed, or should he do as was done in this situation.

Just what the conditions might have been had all the fuel tanks of the plane been fully loaded is problematical. According to some observers, the loss of life might have been heavy. Furthermore, some credit should be given the crew of the airliner, members of which stood to their posts, some with axes and extinguishers at hand, and made every effort to further the removal of the passengers.

Winnipeg Fire

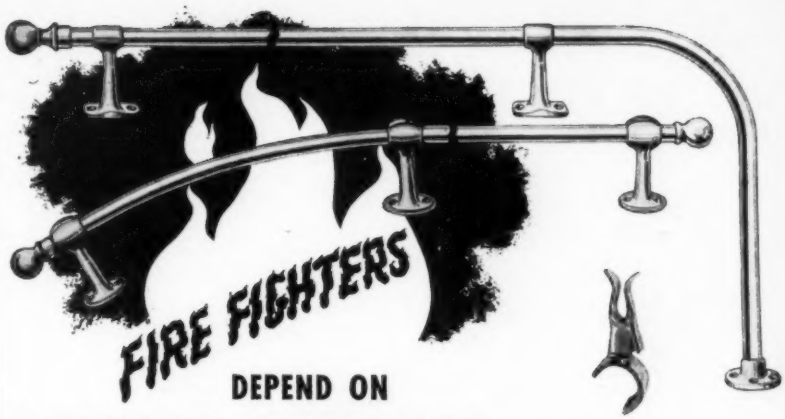
(*Continued from page* 739)

second call, the pressure is raised to 175 p.s.i., and on the third call, to 225 p.s.i. At 2:40 A.M. on June 8th the pressure was increased to 1.25 p.s.i.; at 3:00 A.M. to 175 p.s.i.; at 3:35 A.M. to 200 p.s.i.; and at 6:29 A.M to 225 ps.i.

"At 10:00 A.M. in the morning. a hydrant branch failed and the pressure dropped from 225 p.s.i. to 170 p.s.i., but by operating the valves it was restored to 225 p.s.i. by 10:15 A.M. The hydrant branch when subsequently dug out was found to be badly corroded (cast iron Class "H").

"At 11:20 A.M. a 10-foot section of high pressure main split. The pressure immediately dropped from 225 p.s.i. to 80 p.s.i. but by energetic shutting off of valves was up to 130 pounds three minutes later and 25 minutes later back to 225 p.s.i. At 12:45 P.M., June 8th, another hydrant branch failed (also subsequently showing corroded pipe) and the pressure dropped from 220 p.s.i. to 100 p.s.i. At 1:55 P.M. another pipe cracked on the high pressure system dropping the pressure from 225 p.s.i. to 190 p.s.i. The pressure was restored to 225 p.s.i. by 2:10 P.M. At 2:25 P.M. the Fire Department ordered the pressure reduced to normal.

"During the interval from 2:40 A.M. to 4:25 P.M., June 8th, 5,300,000 gallons of water were pumped from the high pressure mains with no trouble of any kind at the pumping station. We can only speculate as to what happened to cause the fractures in the high pressure distribution system. We believe they were caused by too rapid operation of the hydrants thus setting up water hammer. The other two breaks occasioned by corrosion are quite understandable as the cast iron pipe has been in the ground since 1908 and this area is known widely for its corrosive soil."



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Likewise, the manufacture of fire fighting trucks is a very exacting business. Every piece of equipment must be dependable to eliminate any chance of mechanical failure.

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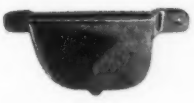

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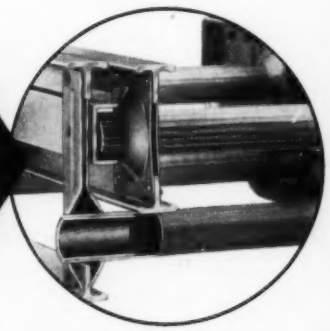

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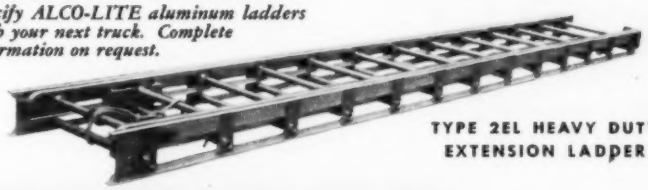

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McINTIRE GATE VALVES

Fig. 164AN

4½" swivel female x two 2½" male Gated Siamese. Quick opening, ¼ turn valves.

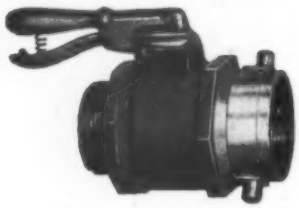

Fig. 163

Made either Right Hand or Left Hand 2½" male x female, gate valve.

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Ventilation

(*Continued from page 745*)

cers 33; firemen 173. Many off-duty officers and men voluntarily responded and rendered valuable assistance. Also present were Robert K. Sawyer, managing director of the City of Philadelphia; Thomas J. Gibbons police commissioner and his staff; Dr. Saverio F. Brunetti and his assistants, operating the Fire Department Mobile Hospital phia; Leo Brennan, Law Department; Chief Edgar P. Grim, Electrical Bureau and members of the Fire Reserve Force and Second Alarmers' Association.

Chronology of Alarms and Response

Local (Still) Alarm:	7:04 P.M. EST (Con. Alarm System)—E. 20; L. 23; B.C. 4.
First Alarm (Box 884):	7:10 P.M.—E. 14, 4, 26; L. 2; R. 1; B.C. 2; D.C. 1.
Second Alarm:	7:24 P.M.—E. 11, 32, 43, 8; L. 9; B.C. 1; Asst. Chief; Commissioner and Deputy Commissioner and Chief; SS 100; S.S.S. (Light Wagon, Department Ambulance; Gas Truck and SS 101). Also Communication Car 500 under supervision of Battalion Chief Grim, assisted by Chief Dispatcher William Tebbs.
Special Calls:	7:28 P.M.—Rescue 2. 7:42 P.M.—Rescue 4. 8:22 P.M.—E. 6.

Analysis of Residue from Smoke Ejector

In an effort to gain scientific information about the toxic properties of the smoke and gases of combustion at this fire, condensate from smoke ejectors was submitted for analysis to the Department of Public Works, Bureau of Engineering and Surveys Testing Laboratory. Report of the test was as follows:

Water and volatile matter at 105 deg. C.	27.6%
Tarry matter (distinct pine tar odor)	24.1%
Free carbon	38.3%
Ash	10.0%
	100.00%

The heavy, irritating smoke affected the eyes, and nasal passages of most of the fire fighters who initially attacked the blaze. Prompt and effective use of demand-type respiratory equipment is credited with preventing serious injuries to the men, only two of whom required treatment at the Mobile Hospital. Two others suffered minor burns.

Conclusions

This complete operation demonstrated a number of precepts advanced by the author in the series of chapters on ventilation and in earlier studies on coordinated attack, among them the following:

1. The wisdom of pre-planning for combating fire anywhere in such occupancies especially in high value districts, housing many persons night and day with emphasis on ventilating remote basement and sub-basement areas. Also the importance of periodic inspections of such occupancies.

2. The advantage of (a) equipping the fire force with *all* requisite facilities for effecting natural and mechanical, or power ventilation and (b) of maintaining sufficient reserves of essentials, such

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Write for the complete story on Acme Gas Masks for all fire fighting hazards.

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as lighting equipment, etc.

3. The importance of training and drilling fire department personnel in the use of such facilities, not alone under ideal conditions but as near as possible in situations which may be encountered on the fire ground.

4. Capable generalship and direction of operations.

5. Rapid and thorough size-up and evaluation of the situation, as it is, and as it may possibly develop.

6. Planning the action (of which ventilation is a major factor) and adhering to that plan unless and until developments necessitate deviation from it.

7. The necessity of ample reserves of men as well as equipment for relief and stand-by. The wisdom of "spelling men off" at frequent intervals.

8. Attention to minor details in safeguarding men during operations, i.e.: operating men (wearing masks) in tandem; roping men engaged in hazardous undertakings while so operating; guarding street and floor level openings used in ventilating and attack; providing covering fog, and stand-by lines, etc.

9. Considering what possible damage and interruptions to travel and business, smoke and fumes may do to related exposures; facilitating restoration of services, such as transportation, even before fire may be fully extinguished.

10. Conducting thorough overhaul and salvage (at this fire most of the contents of the burned storeroom were removed to street level in containers as they were overhauled. Occupants of the premises expressed surprise and admiration for the efficient way these details were handled to expedite return of business to normal).

11. Profiting by the lessons in ventilation and attack taught by the incident.

Book Shelf

FOAMS: THEORY AND INDUSTRIAL APPLICATION. By J. J. Bikerman. Published Oct. 1, 1953, by Reinhold Publishing Corp., 330 W. 42nd Street, New York 36, N. Y. 348 pages, containing numerous illustrations, charts, etc. Single copy $10.00.

A critical treatise, written and edited for scientists, contains some 15 chapters, and index, in two Parts. The first Part (Chapters 1 to 11) deals with the fundamental knowledge of foams, and the second, with their applications (Chapters 12 to 14) and inhibition (Chapter 15).

Chapter 12 "Fire Fighting Foams" will be of greatest interest to fire fighters. It is prepared by J. M. Perri, National Foam System, Inc., West Chester, Pa. and contains 29 Sections and 142 references.

The Sections cover such subjects as history of foam as an extinguishing agent; types of foam compounds; fire test performance; applications; characteristics, such as specific gravity, fluidity, stability, covering quality, rating; and description of stabilizers both chemical and mechanical form, etc.

Although the treatise contains a wealth of factual data on the subject, one might wish that the Chapter on fire fighting foams was available in itself at a price that would be more within reach of the majority of firemen. Recommended for the scientific library of the advanced fire fighter.

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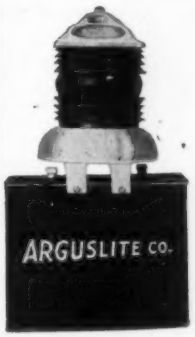

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Metalworking Plants

(*Continued from page 749*)

hazardous chemicals, (k) lubrication and cleaning methods, (l) access to overhead equipment, (m) adequacy of exits, (n) fire alarm system, (o) fire protection equipment.

Practically everything in a plant should be inspected at frequent intervals. It will often be discovered that improvements achieved by safety inspections will serve to aid production by the safer and better utilization of equipment.

All inspections should include records and be followed by systematically applied corrective actions in order to be effective. This requires the submission of reports to department heads who will direct attention to hazardous conditions and unsafe practices, and thereby maintain interest until the problem is properly handled. Responsibility for correcting unsafe conditions should be fixed. All fires and explosions in plants should also be thoroughly investigated to determine the causative factors and the necessary proper preventive action to be taken.

News of the Manufacturers

(*Continued from page 758*)

Gamewell Appoints Edward Ruth

The Gamewell Company of Newton Upper Falls, Mass., has announced the appointment of Edward S. Ruth to the position of Supervisor of Industrial Signaling Engineering.

Edward S. Ruth

Mr. Ruth comes to Gamewell from Edwards Co., Inc., Norwalk, Conn., where he was for many years Director of Research Engineering and Development. He has an extensive Engineering background and is a Fellow in the Technical Committee, Signaling Apparatus Section, National Electrical Manufacturers' Association, and an associate member of the Society of Naval Architests and Marine Engineers. He is also a committee member on Signaling Systems and Thermostats of the National Fire Protection Association, and is a licensed Professional Engineer in the State of Connecticut.

M.S.A. First Aid Kits

Mine Safety Appliances Company, 201 No. Braddock Ave., Pittsburgh, Penn., has modernized and beautified its entire line of Type D "All Weather" First Aid Kit packages.

The dustproof, moistureproof, compact kits have many features besides good looks, utility and compactness. The open lids serve as shelf when kit is hori-

The new improved model MEMCO AERIAL LADDER is an economical all-metal ladder unit designed to be installed on existing truck or to be installed on new equipment by your fire truck manufacturer. Electrically raised and lowered by power from the truck battery.

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zontally mounted on wall or vehicle; packages project beyond the case for easy finger grip; wall mounting brackets are provided; clear, concise instructions are mounted on the inside of the cover and individual items are lettered in high contrast, easy-to-read identification.

Descriptive literature describing these modern kits is available upon application of the above company.

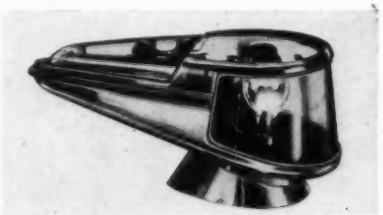
J. T. Babcock, V.P., U.S. Fire Protection Engineering Service

The U.S. Fire Protection Engineering Service, Inc., of Kansas City, Mo., fire prevention and engineering consultants, has opened a new office at 53 West Jackson, Chicago, Ill., and at the same time, announced the election of John T. W. Babcock to the post of Vice-President.

Mr. Babcock will serve as manager of the new Chicago office.

Trippe Type RWL Revolving Warning Light

The Trippe 360 degree "Miloway" is a popular one among warning signals made by Trippe Mfg. Co., for fire vehicles. Housed in a neat ruby red, streamlined dome, it projects its flashing warning light great distances.



Trippe revolving warning light.

A motor drives a silver-plated parabolic mirror around a 100 cp bulb. The mirror is always in focus with the bulb and revolves 90 times a minute, creating a red flash similar to a lighthouse.

Complete descriptive literature about this Trippe product is available upon request. Address Trippe Manufacturing Co., 218 No. Jefferson St., Chicago 6, Ill.

Five Children Perish in Dwelling Fire

Fire took the lives of five young children on Aug. 23, when fire swept a little dwelling at Waterville, Me., in that textile city's most heavily populated district.

The mother of the youngsters, who returned from work at a mill to find her home ablaze, fought Waterville fire fighters who prevented her from climbing a ladder to the second floor of the doomed structure.

The dead, children of Mr. and Mrs. Richard Vachon, are Patricia, 7; Daniel 6; Judith, 4; Stephen, 3, and Anne, seven months. The father was asleep downstairs when the fire broke out at 7:30 A.M.

Firemen said they believed the blaze started on the second floor from defective wiring. The fire was confined mostly to the upstairs rooms. The children were sleeping in two beds and two cribs in two upstairs rooms.

A milk delivery man, seeing the smoke coming from the home, located on King Street, tried in vain to awaken the family.

TOM MAGNER

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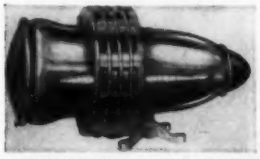

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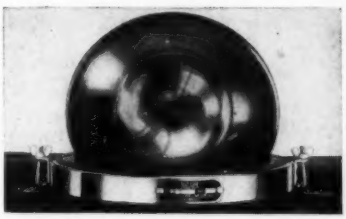

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Powerful Light
When he needs it—where he needs it
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PORTABLE ELECTRIC HAND LAMPS

Model 700-A 2000-foot beam

Most powerful, heavy-duty hand lamp of its size. Adjustable 6-inch head. Operates on four standard No. 6 dry cells.

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Popular price, light weight, easy to carry. Adjustable 5-inch head. Holds two standard 6-volt lantern batteries. Operates on one; other is a spare.

Write for folder on complete information on these and other Big Beam dry-cell and storage-battery models.

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N. Y. State Volunteer Ambulance and First Aid Association

The New York State Volunteer Ambulance and First Aid Association, Inc., was sired in Rockland County, N. Y., and had its inception shortly before Pearl Harbor, in the form of the Rockland County Emergency and First Aid Council, which was patterned largely after the New Jersey First Aid Council.

World War II overshadowed statewide development of the movement and it was not until last year that it came to life, prompted somewhat by the State requiring re-registration of all membership corporations, at which time the Nyack Community Ambulance Corps, Inc., formally took over the dormant outfit and it blossomed into a state body.

A meeting of leaders of the movement was held earlier this year in Binghamton, N. Y. This was headed by Wm. Charters, president of the new organization, and currently also head of the Nyack Community Ambulance Corps, Inc. At this meeting those present expressed enthusiasm and agreed to labor for a rapid growth of the new state group.

The first mobilization of the New York State Volunteer Ambulance and First Aid Association, Inc., was held August 22 as the guests of the Nyack Community Ambulance Corps., with a large and enthusiastic attendance. A contest in first aid and ambulance operations was one of the high points of the session.

Wm. Charters of Nyack, president of the new State body, has long been active in first aid work. His father and Capt. "Babby" Babcock of Nyack were responsible for the much publicized Nyack Fire Patrol.

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device that holds firmly, 2½ gal. foam and S & A extinguishers while removing and replacing caps. Makes recharging a simple one-man job. Save time and temper by using this new extinguisher holder! Used successfully by firemen in military installations, industrial plants and in city fire depts. Unconditional money-back guarantee. Order now! $2.00 each or box of 3 for $5.00.
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FINANCE COMPANY offers for sale, 1950 Cadillac Ambulance, Superior Body. Appearance and Condition like new, priced at $2850.00. No offers or trades accepted. Financing available to reliable parties. Write at once to Box 155, FIRE ENGINEERING, 24 West 40th St., New York City 18, N. Y.

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Sept. 20-21—NORTH CAROLINA PUMP SCHOOL. Annual meeting, Firemen's School Building and Training Grounds, 2601 East Seventh Street, Charlotte, N. C. For information, contact Chief Charles L. Burkett, Director-Conductor, North Carolina Fire College and Pump School, Fire Headquarters, Salisbury, N. C.

Sept. 26-30—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual meeting, Monterey, Cal. Secretary-Treasurer, E. L. Albrecht, Sr., 4528 Pasadena Avenue, Long Beach 7, Calif.

Oct. 4-7—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, Atlantic City, N. J. Secretary-Treasurer, Irwin Shulsinger, 130 West 42nd Street, New York, N. Y.

Oct. 8-10—DELAWARE COUNTY FIRE SCHOOL. Annual meeting, Essington, Pa. Director, Chief Russell B. Wentzell, Fire Headquarters, Lansdowne, Pa.

Oct. 12-14—ILLINOIS FIREMEN'S ASSOCIATION. Annual meeting, Evanston, Ill. Secretary, R. W. Alsip, P. O. Box 8, Champaign, Ill.

Oct. 12-15—KANSAS STATE FIRE SCHOOL. Annual meeting, University of Kansas, Hutchinson, Kans. Director, Gerald Pearson, Director, University of Kansas Extension Classes, 111 Fraser Hall, Lawrence, Kans.

Oct. 14-16—ARIZONA STATE FIRE TRAINING SCHOOL. Annual meeting, Phoenix, Ariz. Director, Harry C. Bigglestone, District Engineer, Board of Fire Underwriters of the Pacific, Luhrs Building, Phoenix, Ariz.

Oct. 17—GREAT LAKES ASSOCIATION OF FIRE CHIEFS. Annual meeting, Rice Hotel, Houston, Tex. Secretary-Treasurer, Chief Elmer Stough, 605 Fourth Street, Lorain, Ohio.

Oct. 18-20—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Lincoln, Neb. Secretary-Treasurer, Russell D. Salak, P. O. Box 312, Schuyler, Neb.

Oct. 18-21—INTERNATIONAL ASSOCATION OF FIRE CHIEFS. Annual meeting, Houston, Tex. Secretary-Treasurer, Chief Daniel B. Tierney, 8 Robbins Road, Arlington 74, Mass.

Oct. 19-20—INTERNATIONAL FIRE BUFF ASSOCIATES, INC. Annual meeting, Houston, Tex., during the I. A. F. C. Conference. Secretary, E. R. Damaschke, 916 West Marshall Avenue, Ferndale 20, Mich.

Oct. 19-22—FIRE ADMINISTRATION AND PERSONNEL, MANAGEMENT CONFERENCE FOR PAID AND VOLUNTEER FIRE OFFICERS, an 18-hour school with sessions from 4 to 6 P.M. and 7 to 9 P.M. School to be conducted by the Extension Division of the University of Wisconsin, Madison, Wis. Registration fee $6.00.

Oct. 21—FIRE CHIEFS' EMERGENCY PLAN OF WESTCHESTER COUNTY. Monthly meeting. Croton-on-Hudson, N. Y. For information contact the Fire Control Center, Fire Headquarters, White Plains, N. Y.

Oct. 22-24—NEW JERSEY STATE FIRE COLLEGE. Annual meeting, National Guard Training Center, Sea Girt, N. J. For reservations, contact New Jersey State Fire College, 24 Branford Place, Newark, N. J.

Nov. 9—EGYPTIAN FIRE FIGHTERS ASSOCIATION. Third Quarterly meeting, Murphysboro, Ill. Secretary, George H. Holmes, Carterville, Ill.

Nov. 13—KEYSTONE STATE FIRE CHIEFS ASSOCIATION. Annual meeting, Weldon, Pa. Secretary, Lewis M. Atkinson, Malvern, Pa.

Nov. 16-18—SYMPOSIUM ON FIRE FIGHTING, to be held at the U. S. Naval Civil Engineering Research and Evaluation Laboratory, Port Hueneme, Cal. Requests for further information should be directed to Officer in Charge, Code 794, U. S. Naval Civil Engineering Research and Evaluation Laboratory, Port Hueneme, Cal.

Dec. 9-10—ILLINOIS FIRE CHIEFS ASSOCIATION. Annual meeting, Rockford, Ill. Secretary, Chief Herbert Bush, Fire Department Headquarters, Centralia, Ill.

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Nip Brush Fires in the Bud with an FZZ

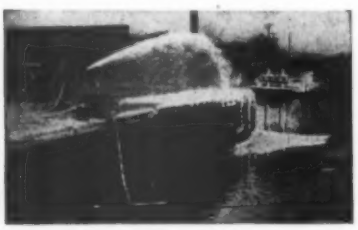
Be Prepared NOW to Fight Forest Fires with a HALE FZZ Portable Pumping Unit

Above and at bottom are two on-the-spot pictures showing a HALE Type FZZ Portable Fire Pumping Unit fighting a brush fire from a moving truck. An FZZ can be mounted or carried on any type of equipment, making it a real "work-horse" for fighting brush, field and forest fires while in motion. Booster tank is used for a source of water.

The Hale Type FZZ is a powerful, sturdy, ready-to-use unit built specifically for fire fighting. Compact, dependable and efficient, it will stand long hours of continuous pumping.

Above—FZZ Pumping solid stream and fog.

Above—FZZ Relaying through Major Pumper.



Above—FZZ Pumping Foam (Foam proportioner built in if specified.)

The unit will supply from draft, 60 U. S. Gallons per minute at 90 lbs. pump pressure, and up to 150 U. S. Gallons per minute at 30 lbs. It can supply two capable fire streams through 1½" hose lines using nozzle tips up to ½".

Note: Discharge adapter can be supplied for use with 2½" hose.

Available in carrying frame; mounted on two wheels; or mounted on rubber-cushioned steel channels.

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● *Write today for FZZ Circular. Ask for Demonstration.*

HALE FIRE PUMP COMPANY Conshohocken, Pa. ● Fire Pumps in All Standard Capacities

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FIRE ENGINEERING

SEPTEMBER, 1954

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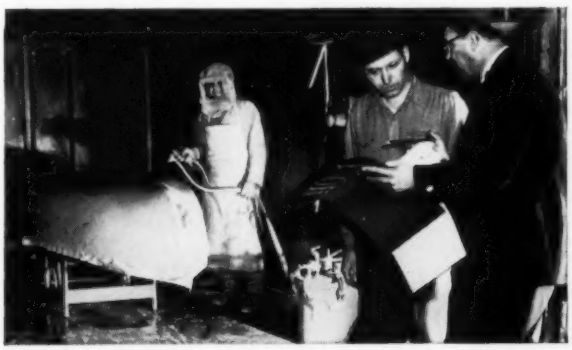
TRAINING FOR YOUR PERSONNEL at your plant is provided by Ansul fire control experts without cost to you.

VISUAL AIDS for your safety meetings designed to make all your employees fire-control conscious.

CUSTOMER SCHOOL AT MARINETTE—best equipped fire control school available for training your key safety personnel.

COMPLETE PLANT SURVEY provided by Ansul is designed to give you the best fire protection possible at the lowest cost.



Ansul Fire Equipment is Faster, More Effective

A positive activating system puts Ansul's "Plus-Fifty" dry chemical to work immediately. To insure full fire coverage, patented nozzles deliver the right kind of stream for your fire protection problem (low velocity or long range). Ansul extinguishers are water-tight, corrosion resistant, always ready for action, even after extreme weathering. Quality features like these make it possible for Ansul to back their equipment with a 5-year warranty.

Call the Ansul Man!

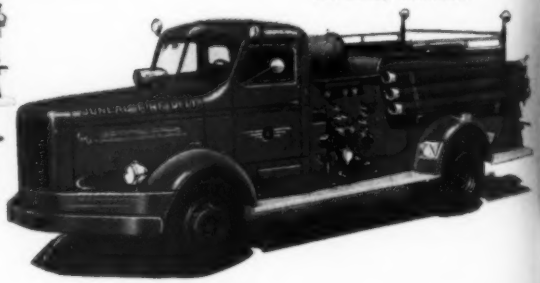
Get in touch with your local Ansul man through the "yellow pages" or write ANSUL CHEMICAL COMPANY, Fire Equipment Division, Department F-14, Marinette, Wisconsin.

ANSUL

Four more cities choose FWD®

BILOXI, MISS.

JUNEAU, ALASKA



WALTHAM, MASS.

NEVADA CITY, CAL.

Only four-wheel drive can give the extra protection your community deserves!

You've got to *get to* a fire to *fight* it—and *fast!* No wonder responsible officials in communities the nation over are turning to FWD engines as the ultimate in fire protection. All-wheel traction, plus rugged, dependable equipment and accessories lend the hand you need in the tough job of fighting fire!

Ask for your copy of "FWD Fire Engines"; photos and descriptions of FWD equipment carefully chosen by communities all over the country. Let it help you make your choice!

TERRIFIC IN TRAFFIC ...and traction

FWD saves precious seconds on every run—but does it safely. Front wheels hold to the tightest turn, with no drift or slip. Correct power-weight proportions let you whip 'er through the most congested traffic. FWD Center Differential eliminates wheel-fight at high speeds, prevents weaving and slewing. Your crew can depend on FWD—it gets 'em there fastest, safest!

FWD *AMERICA'S SAFEST FIRE-FIGHTING APPARATUS*

THE FOUR WHEEL DRIVE AUTO CO., CLINTONVILLE, WIS., *Canadian Factory,* KITCHENER, ONT.

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ONT.